

REPORT NUMBER 141

JANUARY 1964

WIND TUNNEL TEST REPORT

CONVENTIONAL MODEL VOL. I

AD 653566



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REPORT NUMBER 141
WIND TUNNEL TEST REPORT
CONVENTIONAL MODEL

VOLUME I
LOW SPEED FORCE & MOMENT DATA

XV-5A LIFT FAN
FLIGHT RESEARCH AIRCRAFT PROGRAM

JANUARY 1964

ADVANCED ENGINE AND TECHNOLOGY DEPARTMENT
FLIGHT PROPULSION DIVISION
GENERAL ELECTRIC COMPANY
Cincinnati, Ohio 45215

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1.0 INTRODUCTION

This report presents the results from the wind tunnel tests of a 1/8-scale conventional model of the U.S. Army XV-5A Lift Fan Flight Research Aircraft. The tests were performed to determine the subsonic aerodynamic characteristics of the XV-5A in its conventional flight configuration.

The test results are presented in three volumes. Volume I contains the tabulated force and moment data from the low speed ($M = 0.285$) tests. Pressure and hinge moment data for the low speed tests is presented in Volume II. Volume III presents the results of the high speed ($M = 0.4$ to 0.9) wind tunnel tests.

The 0.285 Mach wind tunnel tests were conducted in the eight foot by twelve foot test section of the General Dynamics/Convair low speed wind tunnel. Two series of tests were performed; the first from June 6 through 19, 1962, and the second during the period August 21 through 27 of the same year. The high speed tests were conducted at the David Taylor Model Basin (DTMB) seven by ten foot transonic wind tunnel facility during the period July 23 through August 1, 1962. The information presented in the three volumes of this report have been obtained largely by consolidating the data given in the test reports prepared by the test facility. This report is limited to a presentation of the data and information considered useful in interpretation of results. Discussions covering the use of data in predicting aircraft characteristics will be found in subsequent technical reports.

2.0 MODEL DESCRIPTION AND TEST PROCEDURES

2.1 MODEL AND INSTALLATION

The XV-5A 1/8-scale model was designed for testing in both low speed and high speed wind tunnel facilities. The basic model consisted of a wing of aluminum construction, which was equipped with flaps, ailerons, removable plates for wing fan covers and exit louver simulation; removable wing fan strut fairings. The fuselage was constructed of aluminum, mahogany, and Fiberglas with simulation of internal gas generator inlet and exhaust ducting. The empennage was removable with the rudder and elevators. The model was installed on the Convair tandem strut support system. An external balance was used for measurement of forces and moments. The model was designed for testing upright, but was inverted for determination of aerodynamic tares. Provisions were made to permit testing of wing and fuselage alone.

Four internal strain gauge beam balances were used to measure hinge moments acting as the rudder, left elevator surface, left flap, and left aileron. Flexible seals contained within the aileron balance cavity and extending from the wing structure to the leading edge of the aileron were used to simulate similar seals in the aircraft. The seal installation permitted the measurement of upper and lower balance chamber pressures on the right aileron simultaneously. A fixed wiper-type seal attached to the stabilizer structure served the same purpose for measurement of the right-hand elevator balance chamber pressures. The rudder chamber was also pressure instrumented. Pressures were measured using five internally mounted, 48 port Scanivalves. To simulate the effect of various engine inlet mass flows, the model was provided with throttling plates which were inserted immediately downstream of the duct inlets. These throttling plates were used in conjunction with a duct pressure survey rake for inlet flow drag measurement.

Additional design features included removable horizontal tail and wing leading edges and outboard panels. The removable wing sections simplified the testing of variations in the configuration of the basic model during the second phase of low speed tests.

Additional model parts were fabricated for the second series of tests. These new model parts included two sets of wing outboard panels, flap chordwise and spanwise extensions, wing fences and vortex generators, horizontal tail spanwise extensions, and a horizontal tail made in two parts so that it could be mounted in any position on the vertical tail.

The two additional wing outboard panel configurations provided 0° and 4° positive dihedral, in addition to the 6° tips-down configuration of the initial test. The new sets of wing outboard panels, made of mahogany, were constructed without deflectable ailerons; one set (0° dihedral) was cut out to accommodate the spanwise extended flaps. The spanwise flap extension was simply an added piece of the same cross-section attached to the existing flap. The chordwise flap extensions were sheet metal, attached and faired to the existing flaps. The vortex generators were shop fabricated in strips and taped to the model.

Following the first series of tests, but prior to conducting the high speed test program and the second phase of low speed tests, minor modifications were made to the model. These changes included:

- 1) Rework of the external contours of the wing fan cover plates to represent the redesigned covers of the aircraft. These changes necessitated some rework of the wing fan strut fairings.
- 2) Modification of the ailerons to eliminate the horn balance. This resulted in an aileron of reduced span. Minor modifications were also made in the installation of the aileron seals at this time. (All 2nd series tests were performed with ailerons undeflected.)

Model geometrical data is given in Section 4.3 of the Appendix. A drawing showing the general arrangement of the model is presented in Figure 4.1 and model dimensional data is given in Table 4.1. Additional detail information on model configuration and nomenclature is also given in the Appendix.

2.2 TEST PROCEDURES

Information on the configurations tested and the types of data recorded during the test are given in the run indexes for the first and second series test programs. While external balance force and moment data, pressure data, control surface hinge moment data, and tuft data were recorded, not all types of data were recorded for each run. Only force and moment data were recorded during the second series of tests.

All runs were made at a dynamic pressure of 120.0 pounds per square foot, for which the corresponding Reynolds Number was 2.21 million, based on the model wing mean aerodynamic chord of 14.115 inches and assumed average operating conditions of 90° F temperature and 29.92" hg barometric pressure.

With the exception of the horizontal tail configuration, (H_2 used for tail position investigations during the second series of tests), carborundum grit was installed on all model parts in the pattern T_1 , with the exception of first series runs 31 through 37, during which a grit study was made. Grit size #150 was used during all other tests.

During all tests, the model was considered to be in good condition. All joints and screw holes were filled with wax or covered with cellophane tape. With the exceptions of the transition grit, and tufts as noted on the Run Index, the model was in a smooth condition.

In general, external control surface gaps were left unsealed because a seal would have interfered with pressure and hinge moment measurements. Notes on the Run Index indicate the special occasions when external seals were applied.

The horizontal tail (designed for variable incidence) was mounted atop the vertical tail with the incidence pivot point below the horizontal tail surface. The horizontal tail was mounted from a vertical plate which inserted into the vertical tail in such a way that a portion of the vertical mounting plate was left exposed. During some parts of the test this mounting plate was faired with wax to match the airfoil section of the vertical tail; this fairing was treated as a vertical tail modification, V_1 , although it existed only in the presence of the horizontal tail.

One series of runs in the latter test was made experimenting with the flap gap, gradually reducing the gap by applying added layers of tape to the flap leading edge. In each instance the final layer was cellophane tape to minimize the friction due to the tape texture.

Pressures were read directly through five 48-port Scanivalves with pressure transducers installed inside the model. Digitized output from the five transducers was simultaneously printed and punched into IBM data cards. Trial determined that the recording of other data simultaneously with pressure data was inadvisable, because the long running time required to scan 48 Scanivalve ports at each model test point made it difficult to obtain a zero return on the external balance. The

hinge moments also were digitized directly, and readings from all 4 instrumented control surfaces were simultaneously printed and punched into IBM data cards.

The model was mounted on the two-strut support system with the balance measuring center at the intersection of Water Line 12.500 and Fuselage Station 32.500 with the model plane of symmetry. The image support system was used to determine aerodynamic tares for the fuselage alone and for the wing-fuselage combination, empennage off; an image sting, necessary to determine pitch aerodynamic tares for the wing-alone, was also used to determine the effects of the sting in yaw.

3.0 RESULTS

Test results are presented in this report for the two series of low speed wind tunnel tests of the XV-5A 1/8-scale conventional model. Force and moment data are found in this report, and the data have been segregated for presentation according to test phase. Pressure and hinge moment data are given in Volume II under separate cover, and as no data of this type were obtained during the second series of tests, the data in Volume II covers only one test phase. Tuft photographs are not presented in this report. Negatives are on file at the low speed wind tunnel facility.

With the exception of image system runs, the force and moment data from all good runs are presented in this report. External balance coefficients are referred to stability axes, and are presented as both plots and tabulations. Duct internal flow data are presented as tabulated pressures in pounds per square inch. Wing pressures are presented as plotted coefficients, and tabulated coefficients. Fuselage pressures and control surface cavity pressures are presented as tabulated coefficients. Control surface hinge moments are presented as plots and in tabulation.

All external balance data were reduced to the same model moment reference center at Station 30.75 and Waterline 14.00 as shown in the diagram of Figure 4.15 in the Appendix. All force coefficients were reduced on the basis of wing area. Pitching moment coefficients were reduced on the basis of wing area and mean aerodynamic chord. Rolling moment and yawing moment coefficients were based on wing area and wing span.

All external balance coefficients were corrected for the effects of flow inclination and model support system; aerodynamic tares were determined for body alone, wing alone (flaps 0°) and for the wing-body combination with flaps 0° , 30° , and 45° ; tares were interpolated for flaps 15° and 40° . Coefficients were also corrected for wall effects based on the theory for unswept wings; the differences between wall corrections for an unswept wing and a wing of this sweep and taper ratio are known to be negligible. Although duct internal flow measurements were recorded, no internal drag correction has been applied to any of the data contained in this report.

Force and moment data are presented chronologically according to test phase. In each case, the plotted data is preceded by the Run Index applicable to that test phase and is followed by the tabulated results derived during the test. Force and moment coefficients derived during the first test phase are shown in plotted form in Figures 3.1 through 3.32. Similar data for the second phase of tests are presented in Figures 3.32 through 3.55. Refer to the List of Figures to identify the plot of interest. The Run Indexes are shown in Tables 3.1 and 3.3. Tabulated force data for the two test phases are given in Tables 3.2 and 3.4.

Model configuration geometry, detailed description of components and definition of symbols and nomenclature are given in the Appendix. Configuration geometry is shown by sketch and photograph.

Exercise caution in comparing the force and moment coefficients of the first and second test series. At the end of the second low speed wind tunnel test on this model, a difference in lift level for a particular angle of attack was observed between the two tests not attributable to dynamic pressure. Power off data from tests of the XV-5A 1/6-scale lift-fan powered model, and data from high speed tests of the conventional model substantiate the results obtained in the second test and indicate that a correction of approximately two degrees positive should be applied to the recorded angle of attack for the earlier test. However, considerable care was exercised in all tests to assure an accurate calibration of angle of attack. Therefore, no definite cause for the discrepancy has been determined.

For a more detailed discussion of model hinge moment and pressure measurements, and the data derived therefrom, refer to Volume II.

MODEL CONDITION	PREVIOUS TESTS
BAYONETS	WINDSHIELDS
TRUNNION SPACING	BOOM TAIL LENGTH

1/R

DATE	RUN	CONFIGURATION	TEST	q_m	α_g°	ψ_g°	δ_z°	δ_e°	δ_r°	FIGURE NO.
6-6	1*	$W_0 F_0 a_0$ + IMAGE STING	Y_6	118.9	0	-4 TO +12	0	-	-	Not Presented
6-7	2*	" + IMAGE	P_6	117	-8 TO +24	0	"	-	-	Not Presented
	3	$W_0 F_0 a_0 (inv)$ + "	"	"	+8 TO -24	"	"	-	-	Not Presented
	4	$W_0 F_0 a_0 (inv)$	"	118.9	+8 TO -24	"	"	-	-	Not Presented
	5	$W_0 F_0 a_0$	"	"	-8 TO +24	"	"	-	-	3.1
	6	"	Y_6	"	0	-4 TO +12	"	-	-	3.19
	7	"	"	"	8	"	"	-	-	3.19
	8	"	"	"	16	"	"	-	-	3.19
	1.1	$W_0 F_0 a_0$ + IMAGE STING	Y_6	"	0	-4 TO +12	"	-	-	Not Presented
	9	$B_0 (inv)$	P_6	118.4	+8 TO -14	0	-	-	-	Not Presented
	10	" + IMAGE	"	117.3	"	"	-	-	-	Not Presented

REMARKS

a) ALSO GRIT IN TRANSITION PATTERN T_1 WAS ON THE MODEL FOR ALL RUNS EXCEPT 21-36. THOSE RUNS COMPRISED A GRIT STUDY USING GRADES 80-280 INCLUSIVE IN PATTERN T_1 .
 RUN 1: BEEN BECAUSE EXTERNAL BRANCHES AND DOWN OUT PUT CHANNELS WERE INCORRECTLY CONNECTED.
 RUN 2: FOR WING ALONE CONFIGURATION, IMAGE INCLUDES THE IMAGE STING.

DATE	RUN	CONFIGURATION	TEST	q_m	α_g°	V_g°	δ_f°	δ_a°	δ_e°	δ_f°	FIGURE NO.
6-7	11	B_o	P_o	117.3	-8 TO +10	0	-	-	-	-	Not Measured
	12	B_o	"	118.4	-8 TO +24	0	-	-	-	-	3.1
	13	"	Y_o	"	0	-4 TO +12	-	-	-	-	3.19
	14	"	"	"	8	"	-	-	-	-	3.19
	15	"	"	"	16	"	-	-	-	-	3.19
	16	$B_o W_o F_o a_o (INV)$	P_o	118.3	+8 TO -14	0	0	0	-	-	Not Measured
6-8	17	"	"	"	"	"	30	"	-	-	"
	18	"	"	"	"	"	45	"	-	-	"
	19	$B_o W_o F_o a_o (INV)$	"	117.1	+8 TO -14	"	45	"	-	-	"
	20	"	"	"	"	"	30	"	-	-	"
	21	"	"	"	"	"	0	"	-	-	"
	22	$B_o W_o F_o a_o$	"	117.1	-8 TO +14	0	0	"	-	-	Static Pitch Tare
	23	"	"	"	"	"	30	"	-	-	"
	24	"	"	"	"	"	45	"	-	-	"
	25	$B_o W_o F_o a_o$	P_o	118.3	-8 TO +24	0	45	"	-	-	Set M8
	26	"	"	"	"	"	30	"	-	-	3.6

REMARKS # AFTER RUN 15 A STATIC PITCH TARE WAS MADE, APPLICABLE TO RUN 12.

DATE	RUN	CONFIGURATION	TEST	q_m	α_g°	W_g°	δ_f°	δ_a°	δ_e°	δ_r°	FIGURE NO.
6-5 1962	27	$R_o W_o F_o a_o$	P_o	118.5	-8.70 +18	0	0	0	-	-	3.1, 3.2, 3.6, 3.11
	28	"	Y_o	"	0	-4.70 +12	"	"	-	-	3.19
	29	"	"	"	8	"	"	"	-	-	3.19
	30	"	"	"	16	"	"	"	-	-	3.17
	31	$R_o W_o F_o a_o + T_o^{280}$	P_o	"	-4.70 +20	0	"	"	-	-	3.2
	32	" + T_o^{220}	"	"	"	"	"	"	-	-	3.2
	33	" + T_o^{180}	"	"	"	"	"	"	-	-	3.2
	34	" + T_o^{120}	"	"	"	"	"	"	-	-	3.2
	35	" + T_o^{100}	"	"	"	"	"	"	-	-	3.2
	36	" + T_o^{80}	"	"	"	"	"	"	-	-	3.2
	37*	" + T_o^{150}	"	"	"	"	"	"	-	-	3.2, 3.11
	38	$R_o W_o F_o a_o$	P_o	"	"	"	15	"	-	-	3.6
	39	"	"	"	"	"	40	"	-	-	3.6
	40*	"	"	"	"	"	50	"	-	-	Net Residual
	40.1	"	"	"	"	"	"	"	-	-	3.6
	41*	$R_o W_o F_o a_o$ - SEE NOTE	"	"	"	"	0	"	-	-	3.11

REMARKS RUN 37: REPEAT OF RUN 27.
 RUN 40: ZERO SHIFT.
 RUN 41: SEALED FLAP GAP TO FUSELAGE AND TO WING UPPER SURFACE.

DATE	RUN	CONFIGURATION	TEST	q_m	α_g°	W_g°	δ_f°	δ_a°	δ_e°	δ_r°	FIGURE NO.
6-11	42	$B_0 W_0 F_0 a_0 + R_0$	$P_0 +$ DOCT PRESS	1183	-4 TO +20	0	0	0	-	-	Press. Data Only
	43	" + $R_0 P_1$	"	"	"	"	"	"	-	-	"
	44	" + $R_0 P_2$	"	"	"	"	"	"	-	-	"
	45*	" + P_2	P_0	"	"	"	"	"	-	-	3.3
	46*	" + P_1	"	"	"	"	"	"	-	-	3.3
	47*	$B_0 W_0 F_0 a_0$	P_0	"	"	"	0	0	-	-	3.3 3.12
	48	$B_0 W_0 F_0 a_0$	P_0 PRESS	"	"	"	"	"	-	-	3.12
6/12	49	"	Y_0 PRESS	"	0	-4 TO +20	"	"	-	-	3.21
	50	"	Y_0 PRESS	"	8	"	"	"	-	-	3.21
	51	"	"	"	16	"	"	"	-	-	3.21
	52	$B_0 W_0 F_0 S_3 a_0$	P_0	"	-8 TO +20	0	"	"	-	-	3.5
	53	" S_0	$P_0 +$ PRESS	"	"	"	"	"	-	-	3.5
	54	$B_0 W_0 F_0 S_0 a_0$	$P_0 + NH$ + PRESS	"	-8 TO +20	"	"	"	-	-	3.5
	55	"	Y_0	"	0	-4 TO +12	30	"	-	-	3.22
	56	"	"	"	8	"	"	"	-	-	3.22
	57	"	"	"	16	"	"	"	-	-	3.22

REMARKS * RUNS 45, 46 & 47: FLAPS AND AILERONS WERE SEALED TO THE WING UPPER SURFACE AND FLAPS WERE SEALED TO FUSELAGE.

L/R

DATE 1962	RUN	CONFIGURATION	TEST	q_m	α_g°	V_g°	δ_f°	δ_2°	δ_e°	δ_f°	FIGURE NO.
6-12	58	$B_0 W_0 F_0 S_0^W a_0$	γ_0	118.3	0	-4.75 $+12$	45	0	-	-	3.22
	59	"	"	"	8	"	"	"	-	-	3.22
	60	"	"	"	16	"	"	"	-	-	3.22
	61	$B_0 W_0 F_0 S_0^W a_0$	"	"	0	"	0	-	-	-	3.28
	62	"	"	"	8	"	"	"	-	-	3.28
	63	"	"	"	16	"	"	"	-	-	3.28
6-13	64*	$B_0 W_0 F_0 S_0^W V_0 a_0 + TIFT:$	"	"	0	-4.75 $+12$	"	"	-	0	Not Preserved
	64-1*	"	"	"	"	-8.75 $+12$	"	"	-	"	"
	64-2	"	"	"	"	"	"	"	-	"	3.28
	65	"	"	"	8	-8.75 $+12$	"	"	-	"	3.28
	66	"	"	"	16	"	"	"	-	"	3.28
	67	$B_0 W_0 F_0 S_0^W V_0 a_0$	$P_0 + HM$ $+ P_{12}$	"	-8.75 $+20$	0	"	"	-	"	3.28
	68	S_0^W	"	"	"	"	"	"	-	"	3.28
	69	S_0^W	"	"	"	"	"	"	-	"	3.28
	70	$B_0 W_0 F_0 S_0^W V_0 a_0$	$P_0 + HM$	"	-8.75 $+20$	0	0	20 $+10$	-	0	3.13
	71	"	"	"	"	"	"	-15 $+18$	-	"	3.13

REMARKS RUNS 64 & 64.1: ZERO SHIFT IN R.

DATE	RUN	CONFIGURATION	TEST	q_m	α_g°	ψ_g°	δ_f°	δ_{c-}°	δ_c°	δ_r°	FIGURE NO.
6-13	72	B ₀ W ₀ F ₀ J ₀ V ₀ W ₀	P ₆ + HH	118.3	-8 TO +20	0	0	-10/+10	-	0	3.13
	73	"	"	"	"	"	"	-5/+5	-	"	3.13
	74	"	"	"	"	"	"	+5/-5	-	"	3.13
	75	"	"	"	"	"	"	10/-10	-	"	3.13
	76	"	"	"	"	"	"	15/-15	-	"	3.13
	77	"	"	"	"	"	"	20/-20	-	"	3.13
	78	"	"	"	-4 TO +20	12	"	0	-	"	3.32
	79	"	"	"	"	8	"	"	-	"	3.32
	80	"	"	"	"	0	"	"	-	"	3.7, 3.13 3.32
	81	"	"	"	"	-8	"	"	-	"	3.32
	82	"	"	"	"	-12	"	"	-	"	3.32
	83*	"	"	"	"	0	30	"	-	"	16.5, 16.5, 16.5
	83-1	"	"	"	"	"	"	"	-	"	3.7
	84*	"	"	"	-8 TO +20	-12	45	"	-	"	16.5, 16.5, 16.5
	84.1	"	"	"	"	"	"	"	-	"	3.32
	85	"	"	"	"	-8	"	"	-	"	3.32

REMARKS

RUN 83: ZERO SHIFTS IN L, D & HH
 RUN 84: ZERO SHIFT IN D.

4/R

DATE 1962	RUN	CONFIGURATION	TEST	q_m	α_g°	ψ_g°	δ_f°	δ_a°	δ_c°	δ_T°	FIGURE NO.
6-14	99	$B_0 W_0 F_0 S_0^W V_0 H_0 a_1$	$P_c^+ HM$	112.3	-4 \pm 20	0	0	0	20	0	3.16
	100	"	"	"	"	"	"	"	10	"	3.16
	101	"	"	"	"	"	"	"	5	"	3.16
	102	"	"	"	"	"	"	"	-5	"	3.16
	103	$B_0 W_0 F_0 S_0^W V_0 H_0 a_1$	"	"	"	8	30	0	0	0	3.18
	104	"	P_c	"	"	0	"	"	"	"	3.18 3.18
	105	"	"	"	"	"	45	"	"	"	3.18
	106	"	$Y_c^+ HM$	"	8	-12 \pm 12	0	0	0	0	3.18 3.23 3.23
	107	"	"	"	16	"	"	"	"	"	3.18 3.23 3.23
	108	"	"	"	0	"	"	"	"	10	3.24
	109	"	"	"	8	"	"	"	"	"	3.27
	110	"	"	"	16	"	"	"	"	"	3.27
	111	"	"	"	0	"	"	"	"	20	3.29
	112	"	"	"	"	"	"	"	"	25	3.29
	113	$B_0 W_0 F_0 S_0^W V_0 H_0 a_1$	Y_c	"	0	-12 \pm 12	0	0	0	0	3.24
	114	$B_0 W_0 F_0 S_0^W V_0 H_0 a_1 + P_i$	"	"	"	"	"	"	"	0	3.20

REMARKS

DATE	RUN	CONFIGURATION	TEST	q_m	α_g°	V_g°	δ_f°	δ_w°	δ_e°	δ_r°	FIGURE NO.
6-14	115	B ₀ W ₀ F ₀ S ₀ V ₀ H ₀ a ₁ + P ₁	Y ₆	118.3	8	-12 to +12	0	0	0	0	3.20
	116	" + P ₂	"	"	"	"	"	"	"	"	3.20
	117	" + "	"	"	0	"	"	"	"	"	3.20
	118*	B ₀ W ₀ F ₀ S ₀ V ₀ H ₀ a ₁	P ₆	"	-8 to +20	0	0	0	0	0	3.14 3.15
	119	"	P ₆ + H ₁₇	"	-4 to +20	"	"	-20 to +20	"	"	3.10 3.14
	120	"	"	"	"	"	"	-15 to +15	"	"	3.14
	121	"	"	"	"	"	"	-10 to +10	"	"	3.14
	122	"	"	"	"	"	"	-5 to +5	"	"	3.14
	123	"	"	"	"	"	"	+5 to -5	"	"	3.14
	124	"	"	"	"	"	"	10 to -10	"	"	
	124.1	"	"	"	"	"	"	"	"	"	3.14
	125	"	"	"	"	"	"	15 to -15	"	"	3.14
	126	"	"	"	"	"	"	20 to -20	"	"	3.14
	127	"	"	"	-8 to +20	0	30	-20 to +20	0	0	Not Measured
	127.1	"	"	"	"	"	"	"	"	"	3.14
	128	"	"	"	"	"	"	10 to -10	"	"	Not Measured

REMARKS RUN 118: WAXED VERTICAL-HORIZ. TAIL INTERSECTION; TAPERED AILERON TIP SMOOTH SEALED AILERON

UPPER SURFACE GAP. MADE MODEL AS SMOOTH AS POSSIBLE FOR MINIMUM DRAG

124: ZERO SHIFT IN M74 RE-RUN

127: ZERO RETURN TAKEN AT WRONG ANGLE. RE-RUN.

128: BAD LIFT COUNTER. RE-RUN

4/2

DATE	RUN	CONFIGURATION	TEST	q _m	α _g	ψ _g	δ _f	δ _a	δ _e	δ _r	FIGURE NO.
6-14	128.1	B ₀ N ₆ F ₀ S ₀ V ₁ H ₀ ω ₁ + TUFTS	P ₀ + HM	118.3	-8.70 +20	0	30	10/40	0	0	3-14
	129	"	"	"	"	"	"	0	"	"	3-14
	130	"	"	"	"	"	"	-10/10	"	"	3-14
	131	"	"	"	"	"	"	-20/20	"	"	3-14
	132	"	"	"	"	"	45	-20/20	"	"	3-10
	132.1	"	"	"	"	"	"	"	"	"	No Picture
6-15	133	" + TUFTS	P ₀ + P _{ix}	"	-4.70 +20	"	0	0	0	0	"
	133.1	" + "	P ₀	"	"	"	"	"	"	"	3-17
	134	" + "	Y ₀ + R _{ix}	"	0	-12.70 +12	"	"	"	"	Not Measured
	134.1	" + "	Y ₀	"	"	"	"	"	"	"	3-25
	135	" + "	"	"	9	"	"	"	"	"	3-25
	136	" + "	P ₀ + HM + P _{ix}	"	-8.70 +20	0	45	"	"	"	3-14
	136.2	B ₀ N ₆ F ₀ S ₀ V ₁ H ₀ ω ₁	P ₀ + HM	"	"	"	45	-20/20	0	0	3-10
	137	"	"	"	"	"	"	-10/10	"	"	3-14
	138	"	"	"	"	"	"	10/10	"	"	3-14
	139	"	P ₀ + PRESS	"	-8.70 +18	"	0	-20/20	"	"	3-14

REMARKS RUN 128.1: OBSERVED TUFTS. MODEL PICTURE SHOWS LOCATION OF TUFTS.

132: ZERO SHIFT IN HM.

132.1: ZERO SHIFT IN L_f HM.

133: ZERO SHIFT IN L_fD

134: ZERO SHIFT IN R_fM

RUN 139: UNDERSIDE OF FLAP GAP TAPED DURING

RUNS 139 - 146 INCLUSIVE.

L/R

DATE	RUN	CONFIGURATION	TEST	q _m	α _g ^o	ψ _g ^o	δ ₄ ^o	δ ₂ ^o	δ _c ^o	δ _r ^o	FIGURE NO.
6-15-1966	140	B ₀ W ₀ F ₀ S ₀ ^M V ₁ H ₀ ^o ω ₁	Y ⁺ _{PRESS}	118.3	0	-20, -8 +8, +20	0	-20 20	0		Press Data Cur
	141	"	"	"	16	"	"	"	"	"	"
	142	"	P ⁺ _{PRESS}	"	-20 +18	0	"	-10 10	"	1017 2991 Hg	"
	143	"	"	"	"	"	"	10 -10	"	"	"
	144	"	"	"	"	"	"	20 -20	"	"	"
	145	"	Y ⁺ _{PRESS}	"	16	-20, -8 +8, +20	"	"	"	"	"
	146	"	"	"	0	"	"	"	"	"	"
	147	"	P ⁺ _{PRESS}	"	-4 +18	0	30	20 -20	0	0	"
	148	"	"	"	"	"	"	-20 20	"	"	"
	149	"	"	"	"	"	"	0	10	0	"
	150	"	"	"	"	"	45	0	0	0	"
	151	"	"	"	"	"	"	20 -20	"	106°F 3009 Hg	"
	152	"	Y ⁺ _{PRESS}	"	0	-20, -8 +8, +20	"	"	"	"	"
	153	"	"	"	16	"	"	"	"	"	"
	154	"	P ⁺ _{PRESS}	"	-4 +18	0	"	-20 20	"	"	"
	155	"	Y ⁺ _{PRESS}	"	0	-20, -8 +8, +20	"	"	"	"	"

REMARKS RUNS 139-146 INCLUSIVE - UNDER SIDE OF FLAP GAP TAPED.

4/2

DATE 1962	RUN	CONFIGURATION	TEST	q _m	α _g [°]	W _g [°]	δ _i [°]	δ _e [°]	δ _r [°]	FIGURE NO.
6-15	156	B ₀ N ₀ F ₀ S ₀ ^M V ₀ H ₀ [°] a ₁	Y ⁺ PRESS	118.3	16	-20, -8 +8, +20	45	0	0	Pres. Data C _{max}
6-18	157	"	"	"	0	"	0	"	"	"
	158	B ₀ W ₀ F ₀ S ₀ ^M V ₀ H ₀ [°] a ₁	"	"	0	"	45	"	"	"
	159	"	Y ₆ ⁺ HM	"	0	-12 TO +12	0	"	"	3.23, 3.24, 3.25
	160	"	PRESS	"	0	0	0	20	0	Pres. Data C _{max}
	161	"	"	"	"	"	"	10	"	"
	162	B ₀ N ₀ F ₀ S ₀ ^M V ₀ H ₀ [°] a ₁	"	"	"	"	"	0	"	"
	163	B ₀ N ₀ F ₀ S ₀ ^M V ₀ H ₀ [°] a ₁	"	"	"	"	"	"	"	"
	164	B ₀ N ₀ F ₀ S ₀ ^M V ₀ H ₀ [°] a ₁	"	"	"	"	"	"	"	"
	165	"	"	"	"	"	"	"	20	TAPERED KT SIDE OF QUARTER
	166	"	"	"	"	"	"	"	10	"
	167	"	"	"	"	"	"	"	-10	"
	168	"	"	"	"	"	"	"	-20	"
	169	"	Y ⁺ PRESS	"	0	-12 TO +12	"	"	0	"
6-19	170	B ₀ N ₀ F ₀ S ₀ ^M V ₀ H ₀ [°] a ₁	Y ₆ ⁺ HM	"	-8 TO +20	0	45	0	0	14
	171	"	Y ₆ ⁺ HM	"	0	-12 TO +12	"	"	"	Not Presented

REMARKS RUN 159 : REPEAT OF RUN 94.1 EXCEPT WITH WAX FAIRING ON VERT. TAIL (V.).

160 : SCAMMELVE #2 WENT OUT : WILL NOT BE REPAIRED FOR REMAINDER OF TEST.

162 : OMITTED WAX FAIRING ON VERTICAL TAIL WHEN MORE INCIDENCE CHANGED.

171 : ZERO SHIFT IN M & R ; RE-RUN

171.1 : ZERO SHIFT IN M. NOT RE-RUN.

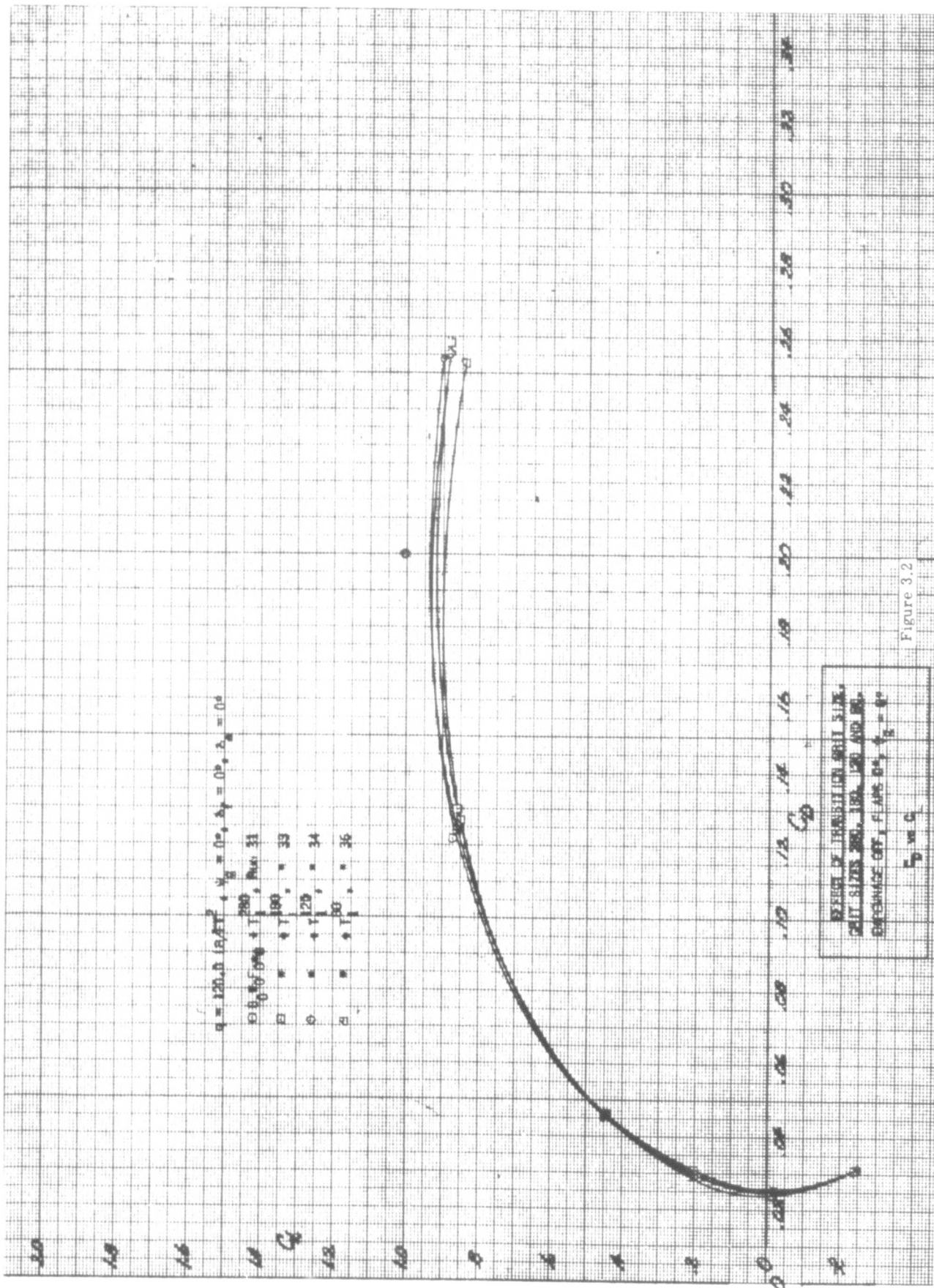
4/2

DATE	RUN	CONFIGURATION	TEST	q_m	α_g°	ψ_g°	δ_f°	δ_a°	δ_e°	δ_f°	FIGURE NO.
6-19	171.1	$B_0 W_0 F_0 S_0^m V_0 H_0 a_0$	$V_0^+ \mu_0$	118.3	0	-12.70 +1.2	45	20/-20	0	0	3.31
	172		"	"	16	"	"	"	"	"	3.31
	173	"	"	"	16	"	"	20/-20	"	"	3.31
	174	"	"	"	0	"	"	"	"	"	3.31
	175	"	"	"	0	"	0	"	"	"	3.31
	176*	"	"	"	16	"	"	"	"	"	
	176.1	"	"	"	16	"	"	"	"	"	3.31
	177	"	"	"	16	"	"	10/-10	"	"	3.31
	178	"	"	"	0	"	"	"	"	"	3.31
	179	"	"	"	"	"	"	0	"	"	3.31
	180	"	"	"	"	"	"	10/-10	"	"	3.31
	181	"	"	"	16	"	"	"	"	"	3.31
	182	"	"	"	"	"	"	20/-20	"	"	3.31
	183	"	"	"	8	"	"	0	"	"	Not Recorded
	183.1	SEE NOTE	"	"	"	"	"	"	"	"	3.26
	184	$B_0 W_0 F_0 S_0^m V_0 H_0 a_0$	"	"	"	"	"	"	"	"	3.26 3.30

REMARKS RUN 176: ZERO SHIFT IN D

183.1: THIS RUN WAS MADE TO INVESTIGATE THE WIDE VARIANCE OF μ @ $\psi = -8^\circ$.
BETWEEN RUNS 83 AND 183.1 THE TAIL STOUT WAS ADJUSTED TO MINIMIZE INTERFERENCE.

RUN SYM
31 ○
33 □
34 ◇
36 ◊



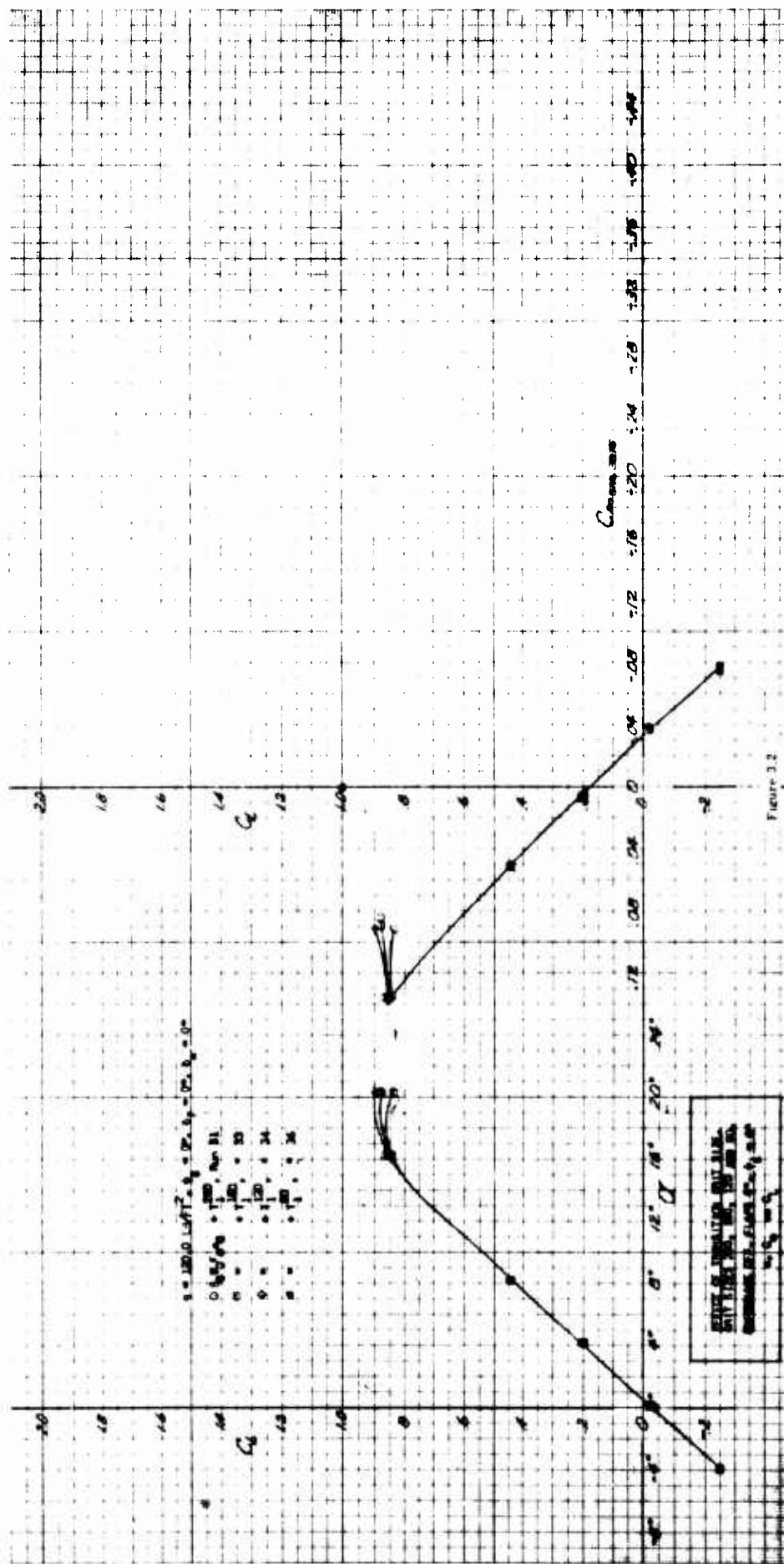


Figure 3.2

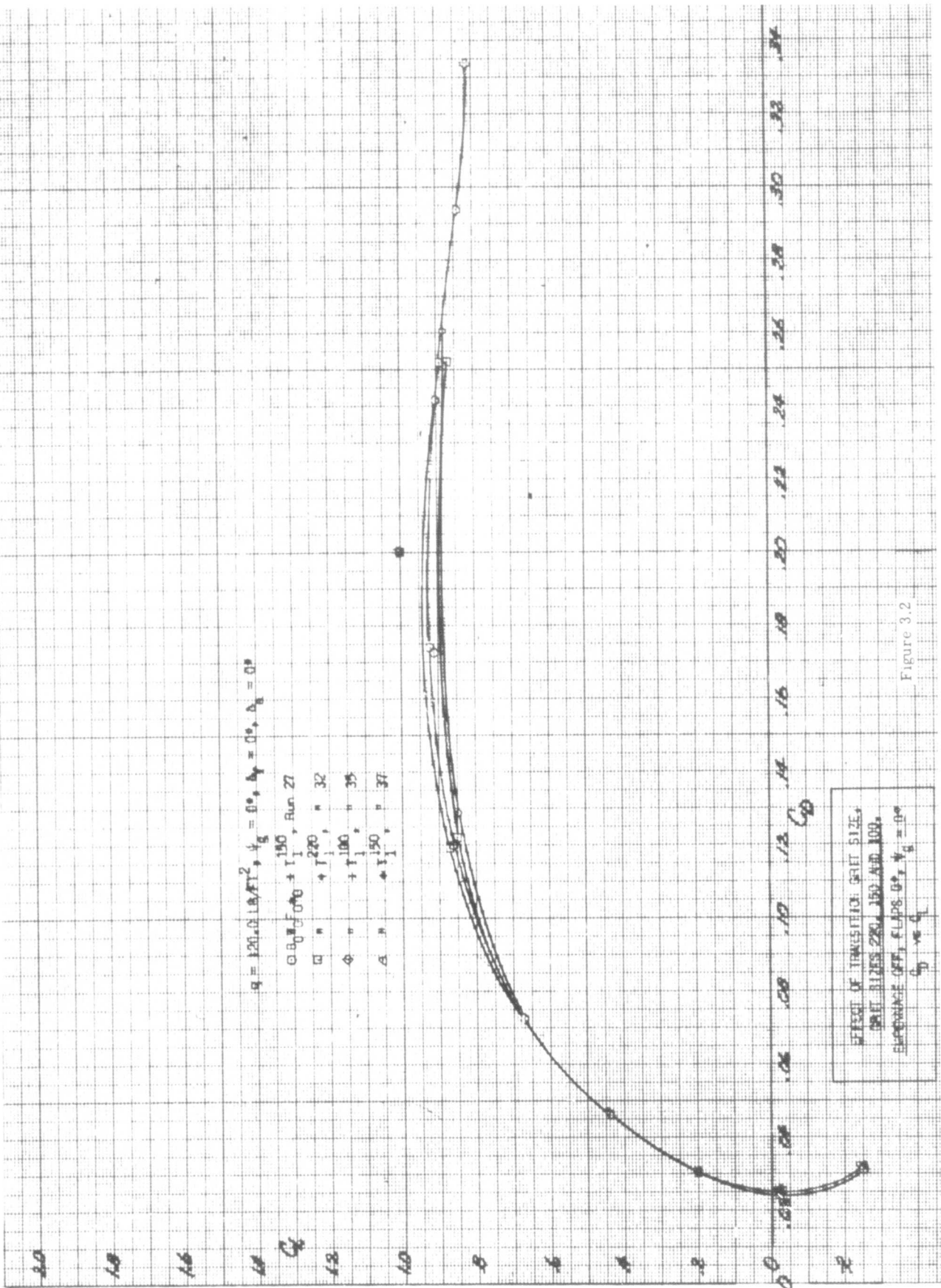


Figure 3.2

RUN SYM
 27 ○
 32 □
 35 ◇
 37 ▲

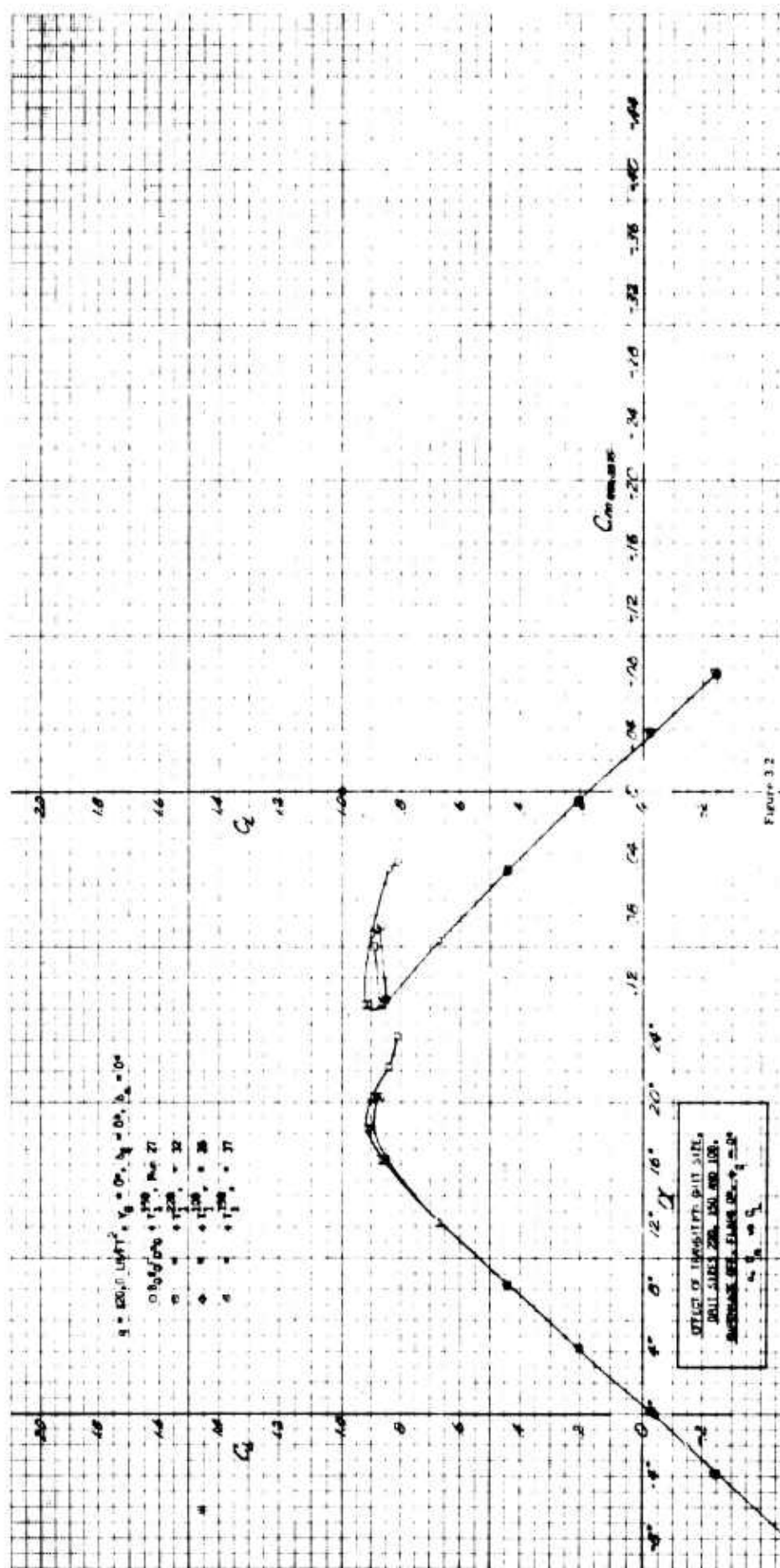
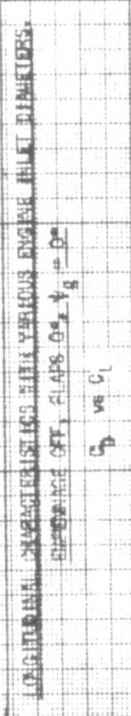


Figure 3.2

RUN 574
27 0
34 0
35 0
37 0

45	0	□	◇
46			
47			



28

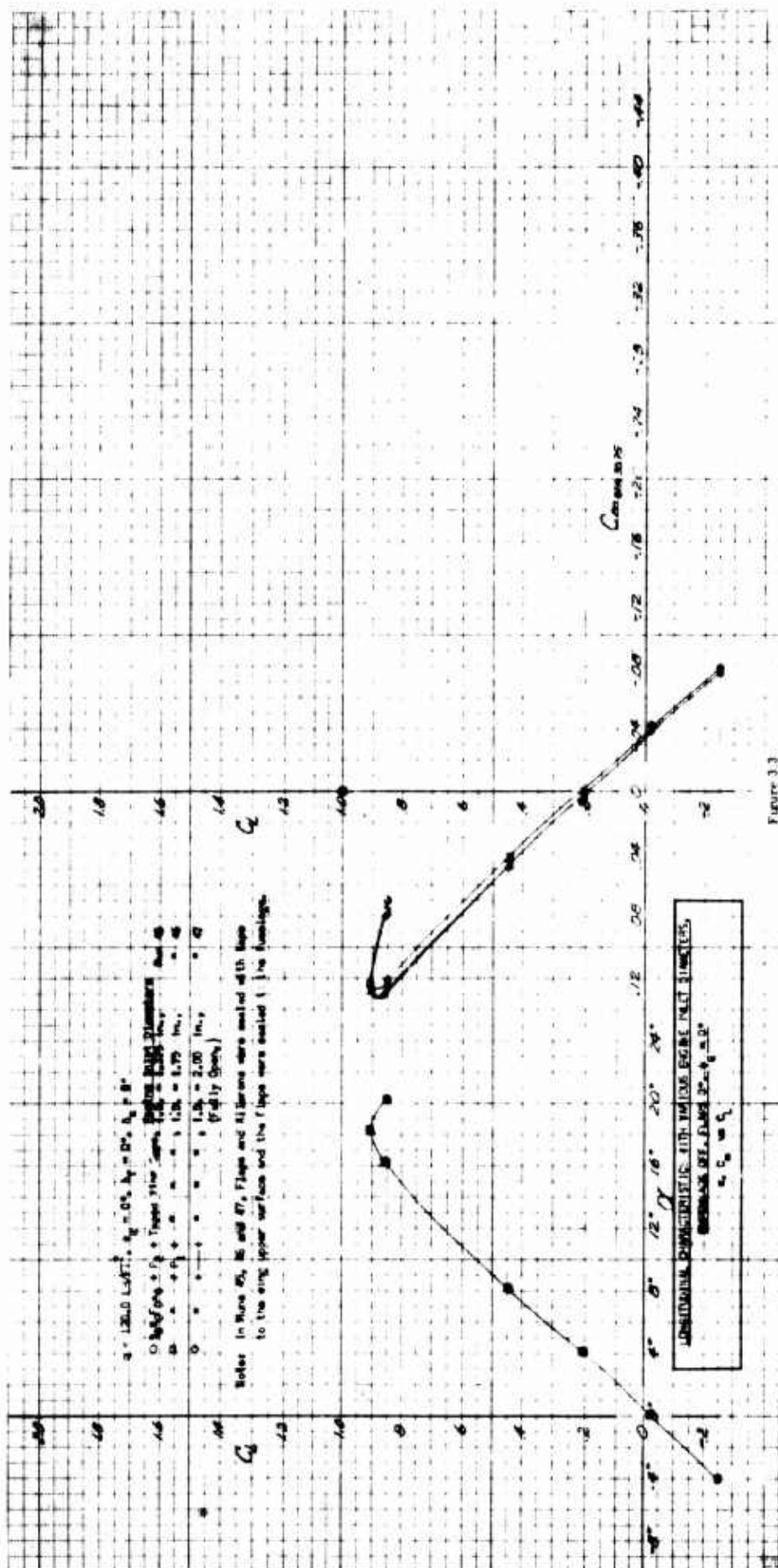


Figure 3.3

RUN SYM
 45 0
 46 0
 47 0

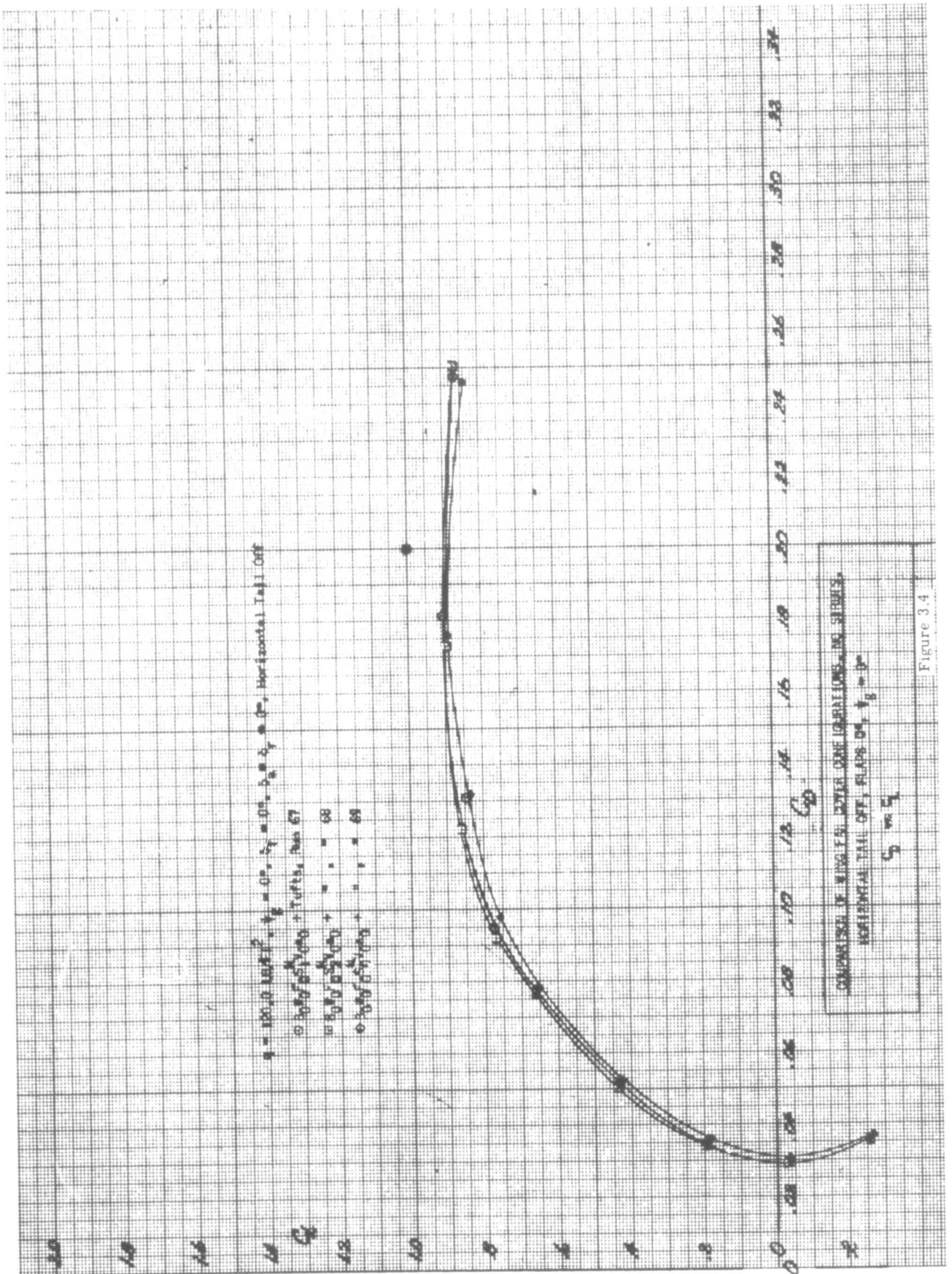


Figure 3.4

RUN SYM

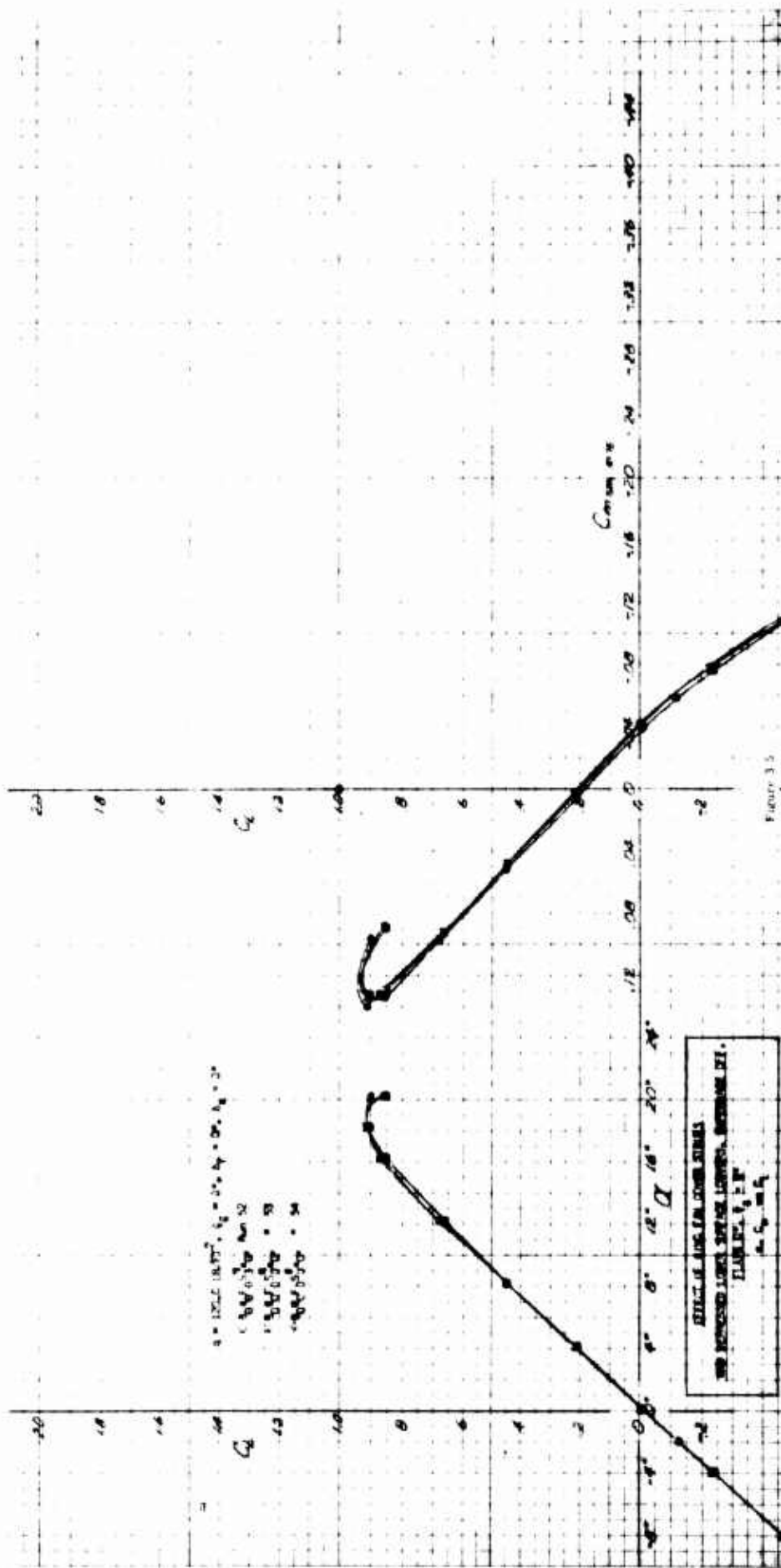
52 ○
53 □
54 ◇

$\alpha = 120.01047^\circ$, $\psi_g = 3^\circ$, $b_p = 0^\circ$, $b_m = 0^\circ$
 □ $\frac{C_D}{C_L} = 0.30$ Run 52
 ○ $\frac{C_D}{C_L} = 0.30$ " 53
 ◇ $\frac{C_D}{C_L} = 0.30$ " 54

EFFECT OF WING TIP CORRECTIONS
 AND DEPRESSED LOWER SURFACE CURVES, EMERALS OFF.
 CASES 22, 23, 24, 25

C_D vs C_L

Figure 3.5



RUN 52
53
54

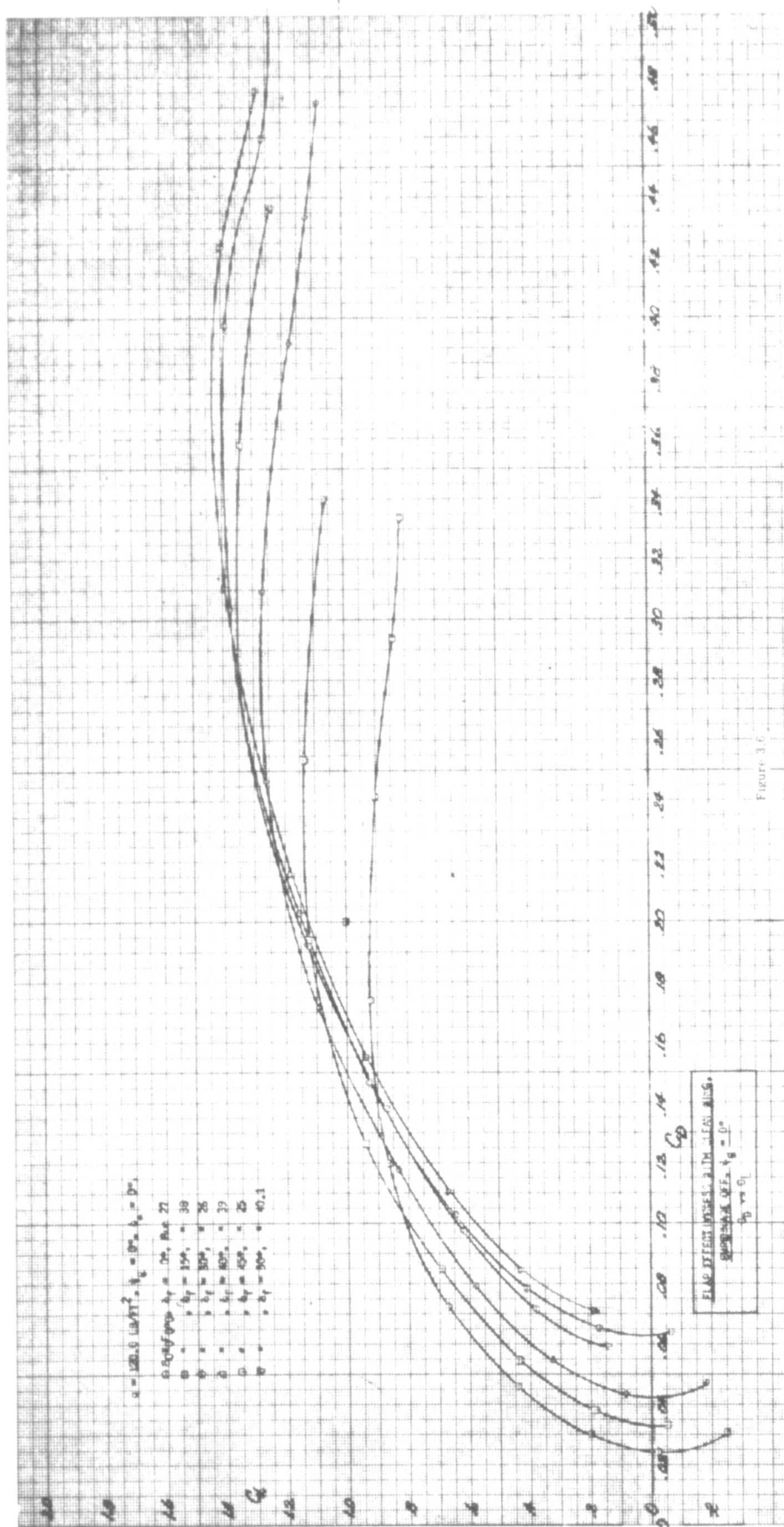


Figure 3.6

RUN SYM
27 O
38 □
26 ○
39 △
25 ○
40 ▽

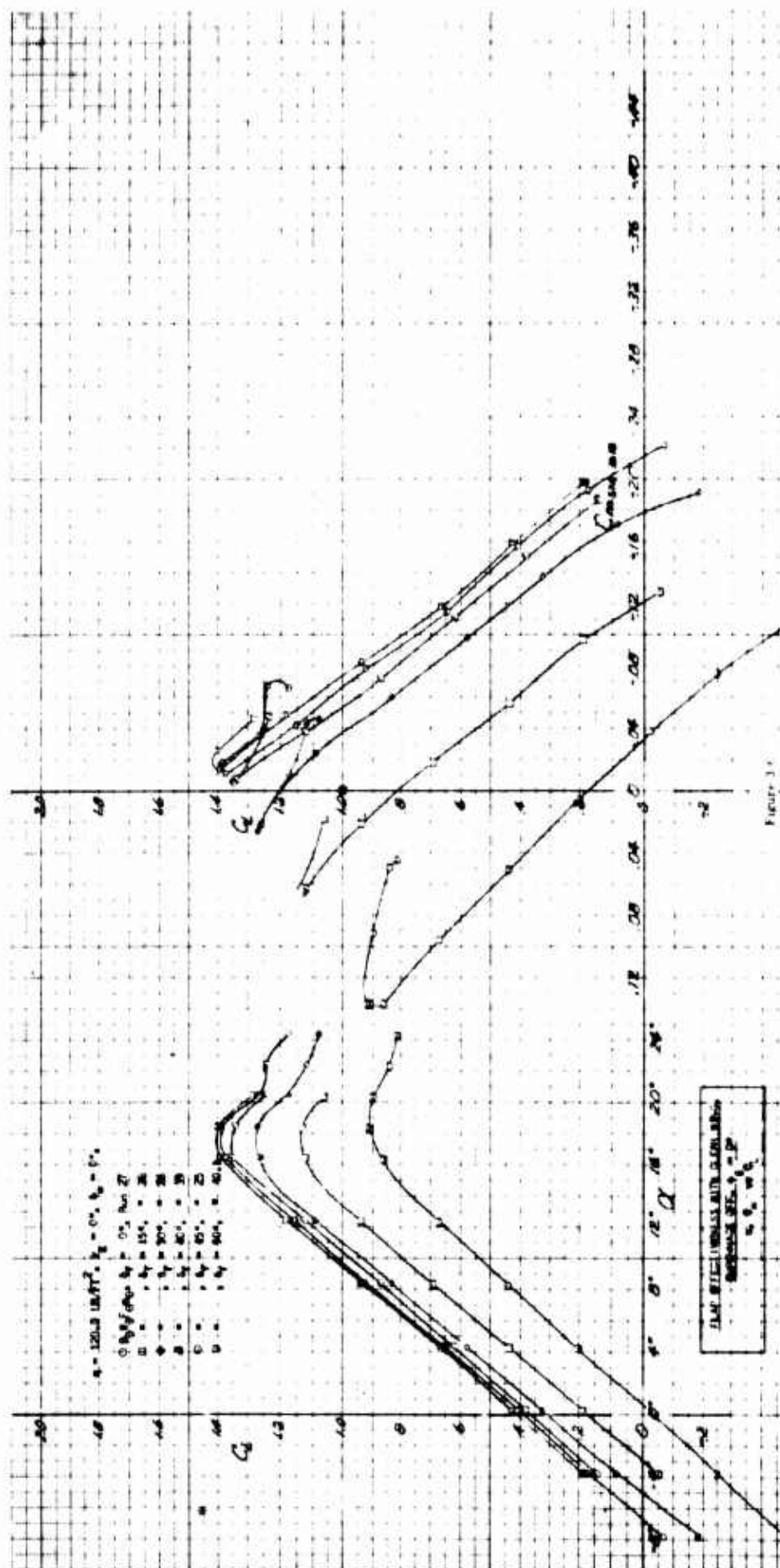


Figure 3

RUN 50M
 27 0
 28 0
 29 0
 30 0
 31 0
 32 0
 33 0
 34 0
 35 0
 36 0
 37 0
 38 0
 39 0
 40 0
 41 0
 42 0
 43 0
 44 0
 45 0
 46 0
 47 0
 48 0
 49 0
 50 0
 51 0
 52 0
 53 0
 54 0
 55 0
 56 0
 57 0
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 81 0
 82 0
 83 0
 84 0
 85 0
 86 0
 87 0
 88 0
 89 0
 90 0
 91 0
 92 0
 93 0
 94 0
 95 0
 96 0
 97 0
 98 0
 99 0
 100 0

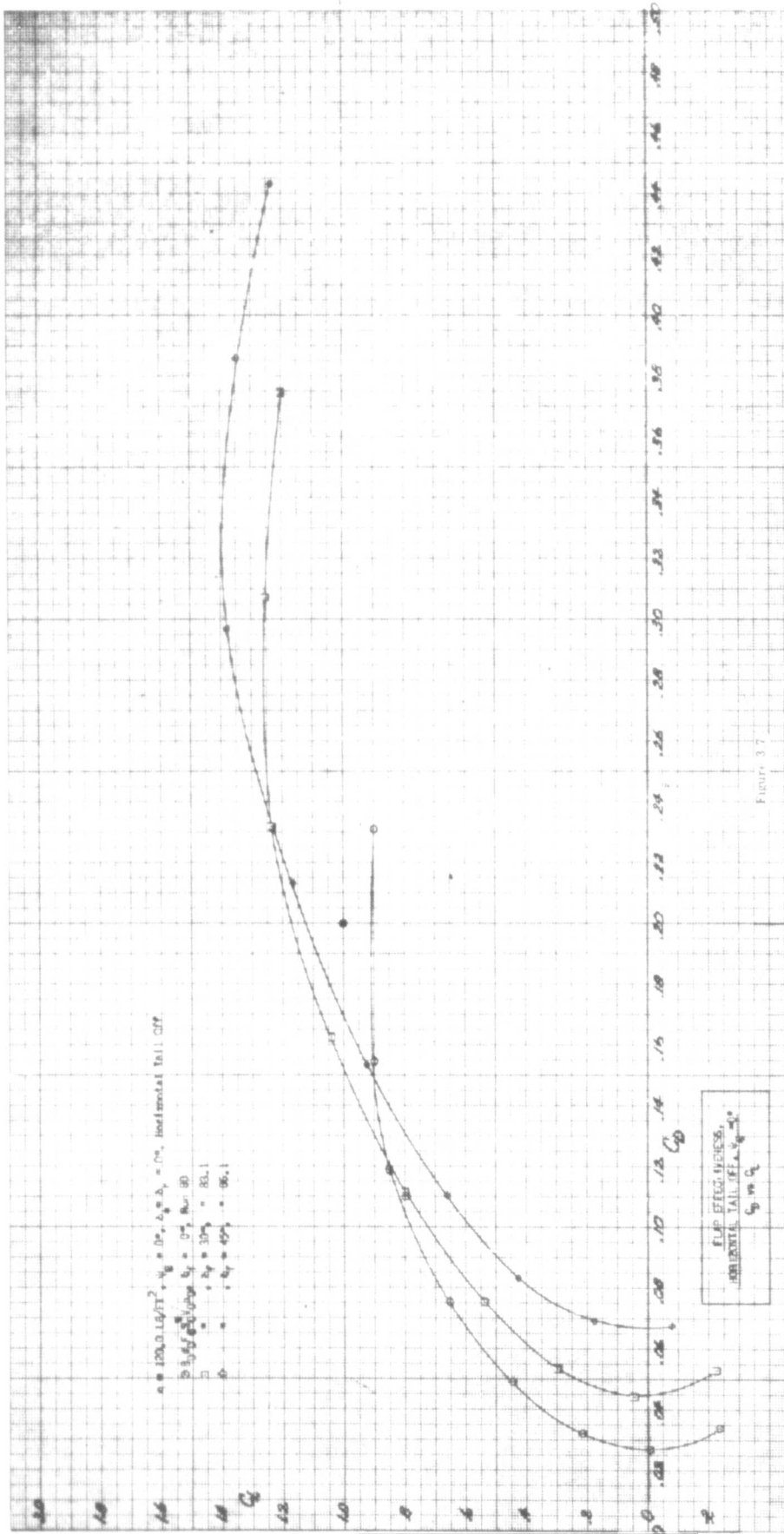
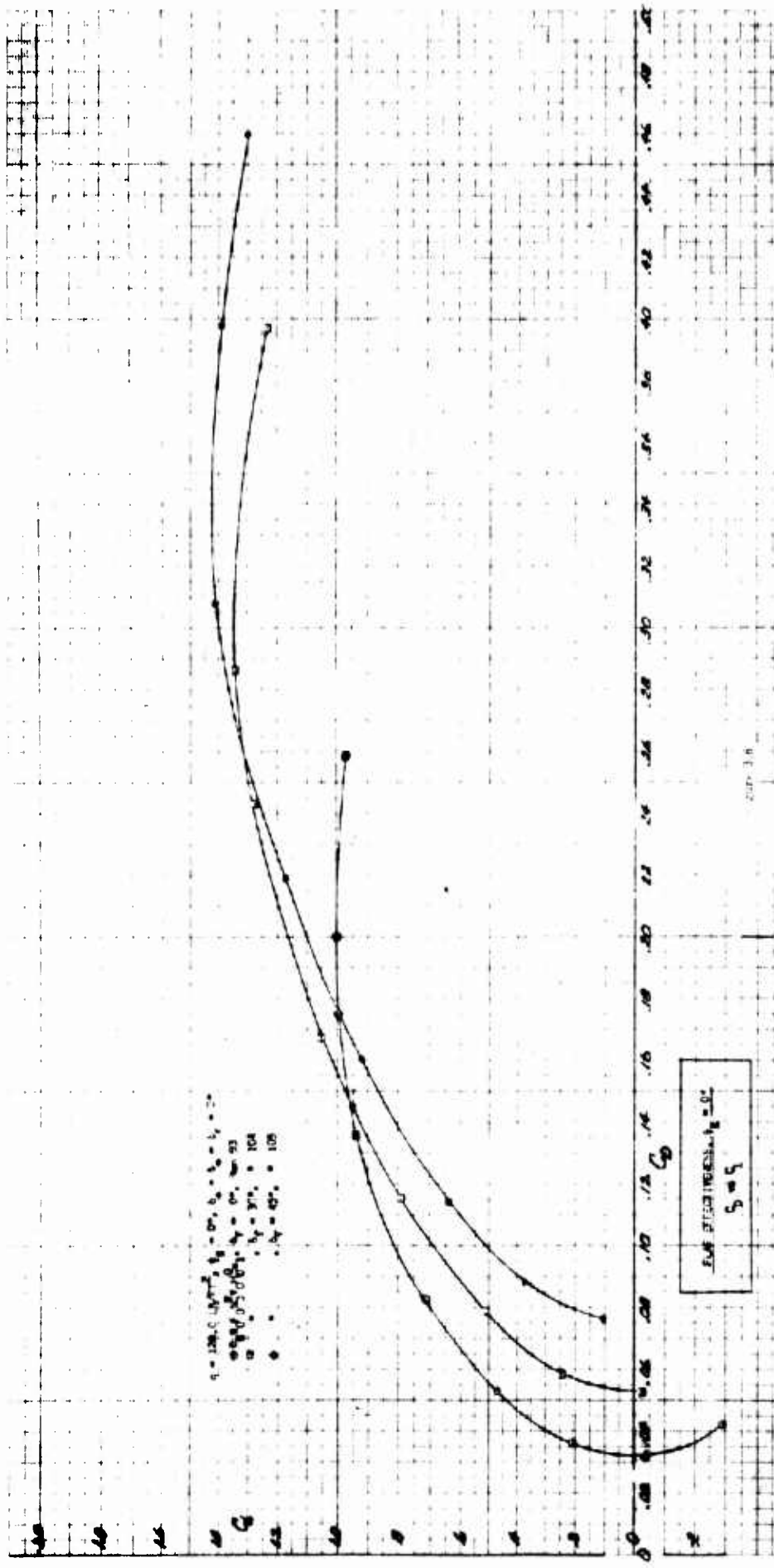
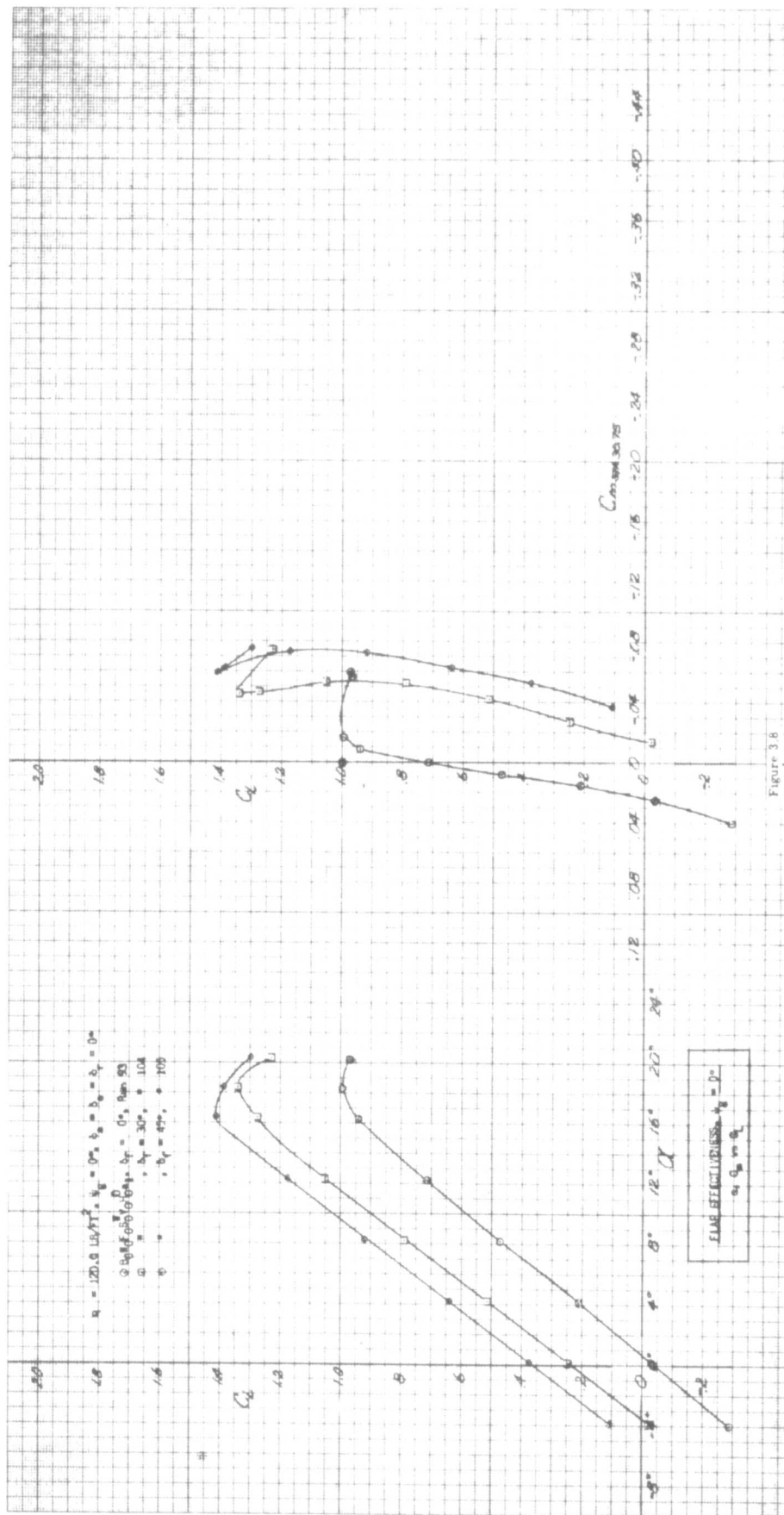


FIGURE 3.7





RUN SYM
73 O
104 □
105 ◇

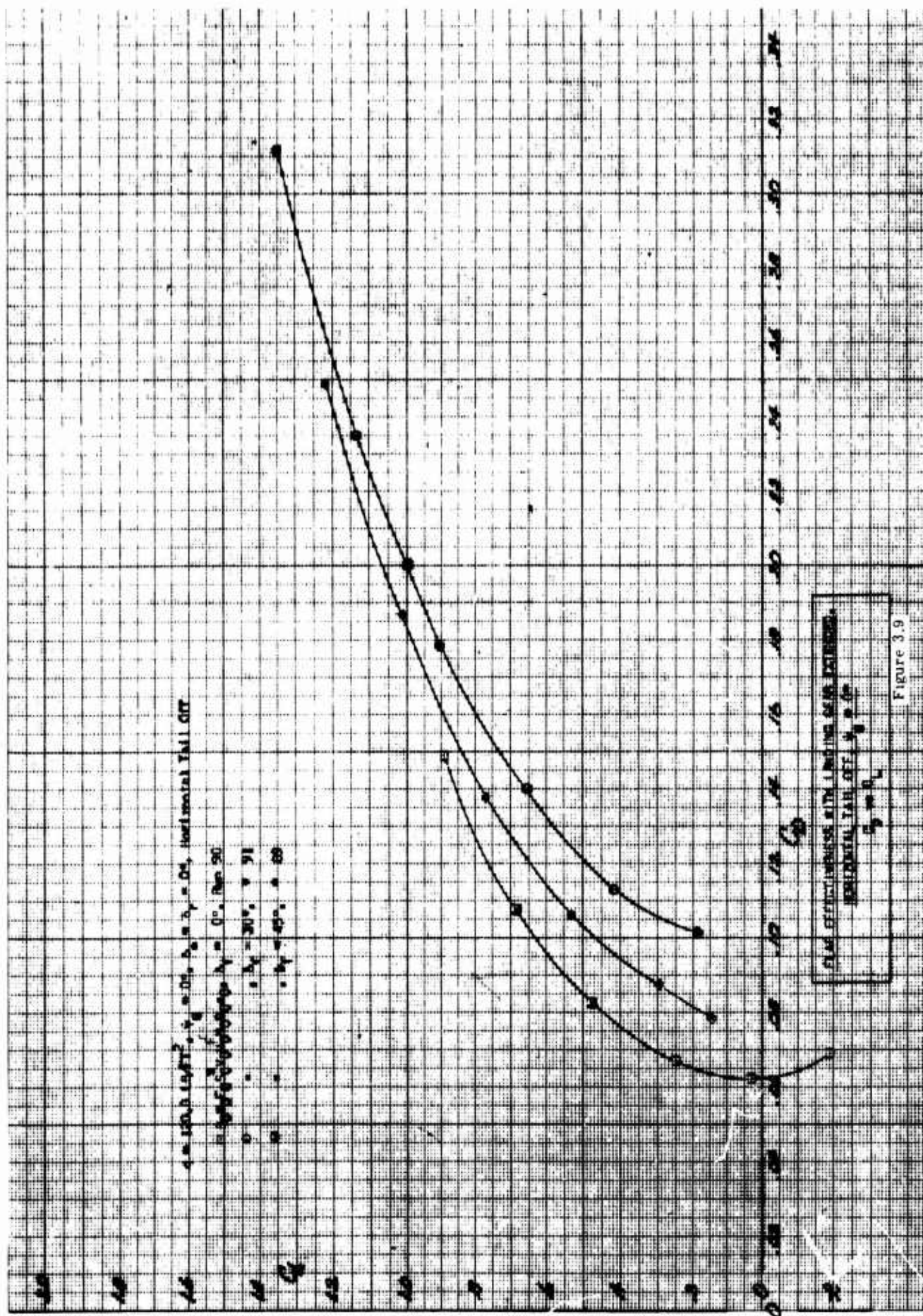


Figure 3.9

RUN SYM
 77 0
 90 0
 91 0

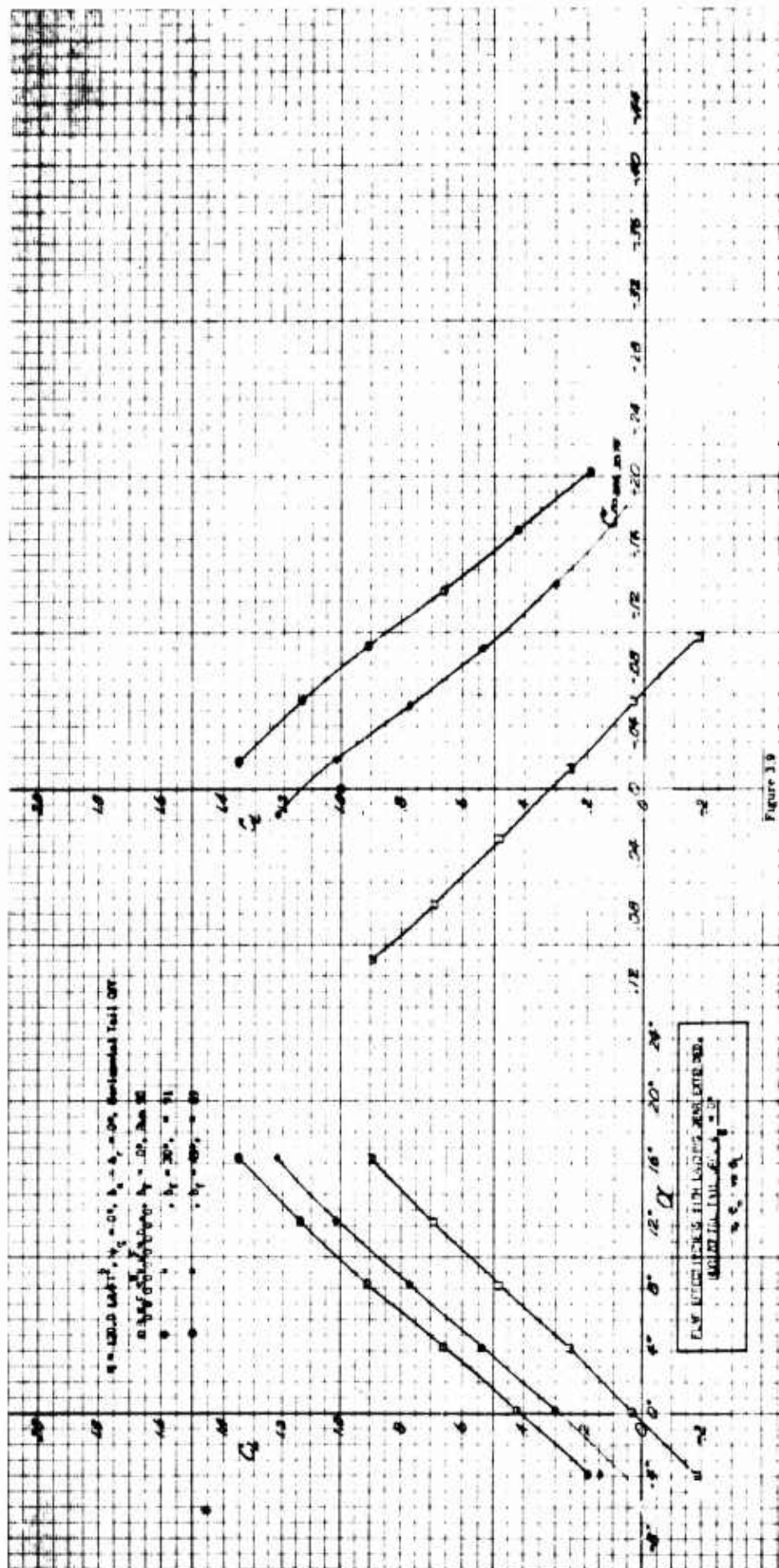
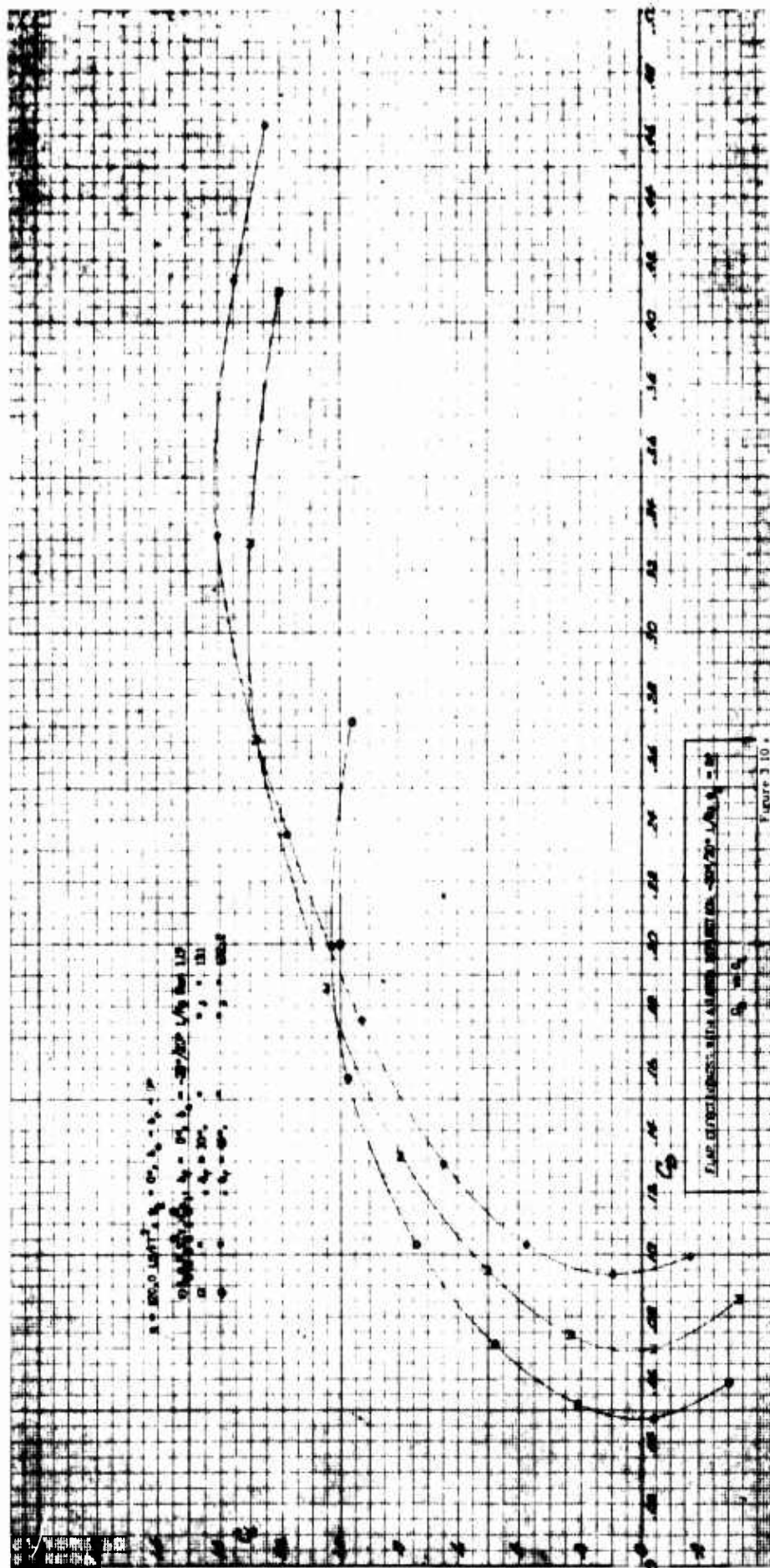


Figure 3.9

RUN SYM
8.7
9.1



FLAME LENGTH, IN.

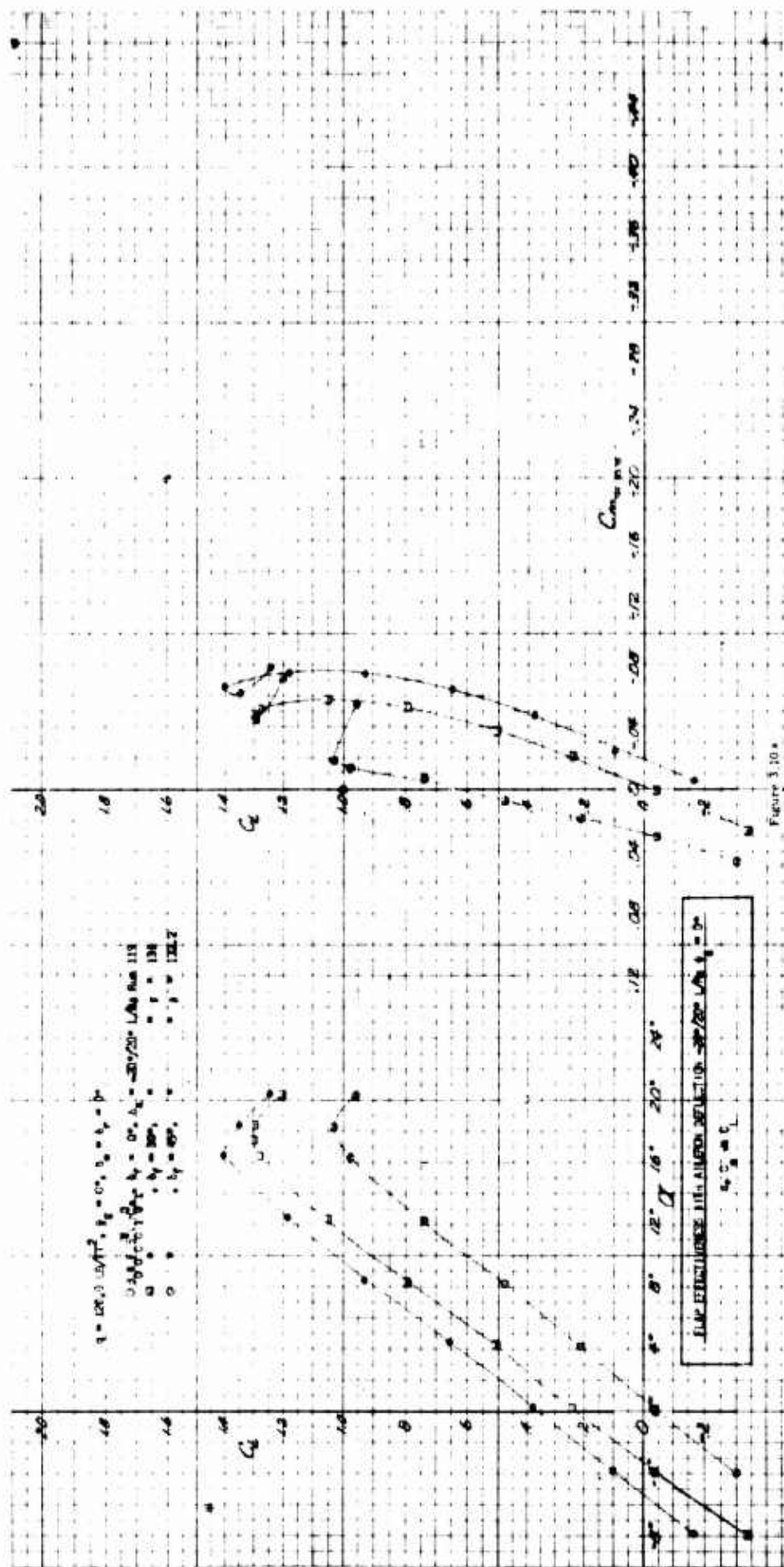


Figure 3.10*

RUN SYM
 119 \circ
 121 \square

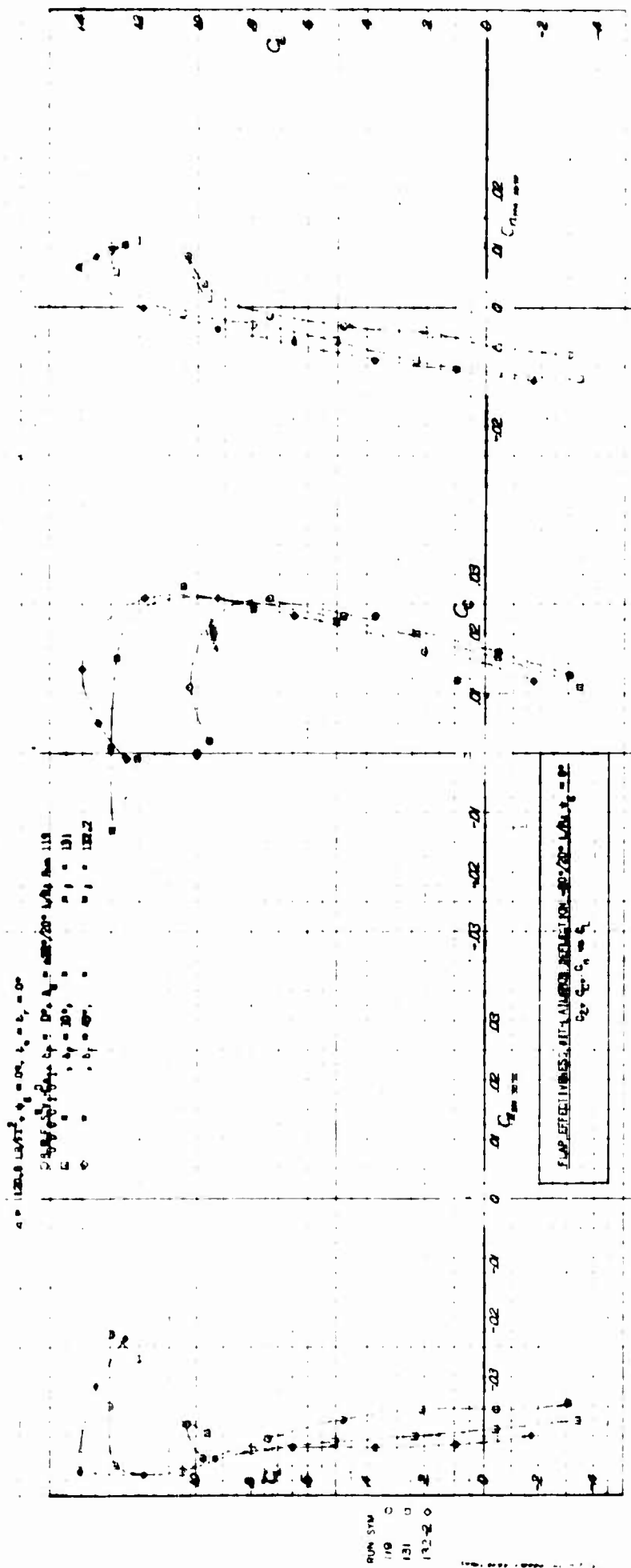


Figure 3.10



RUN SYM
 48 O
 47 D

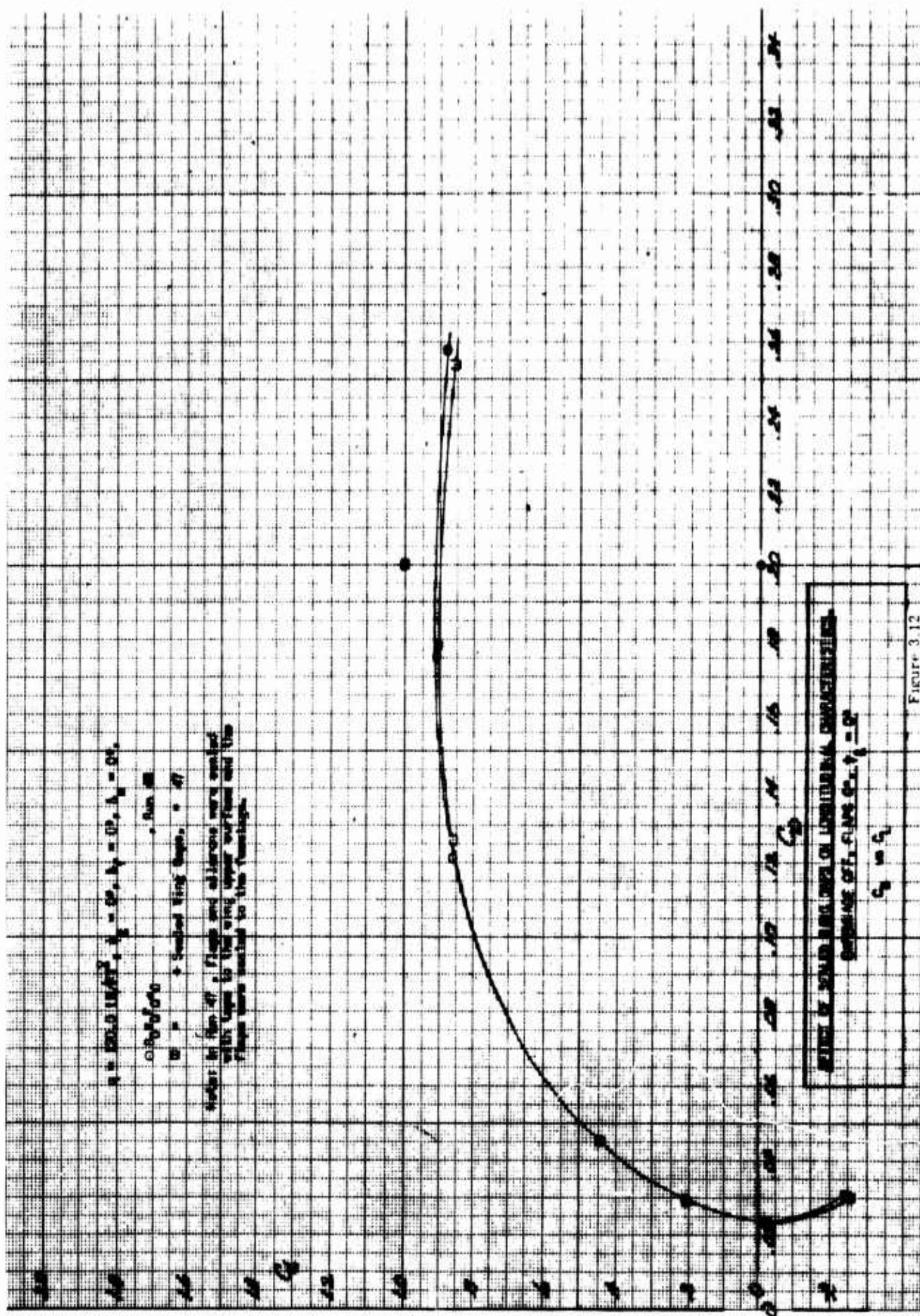


Figure 3.12

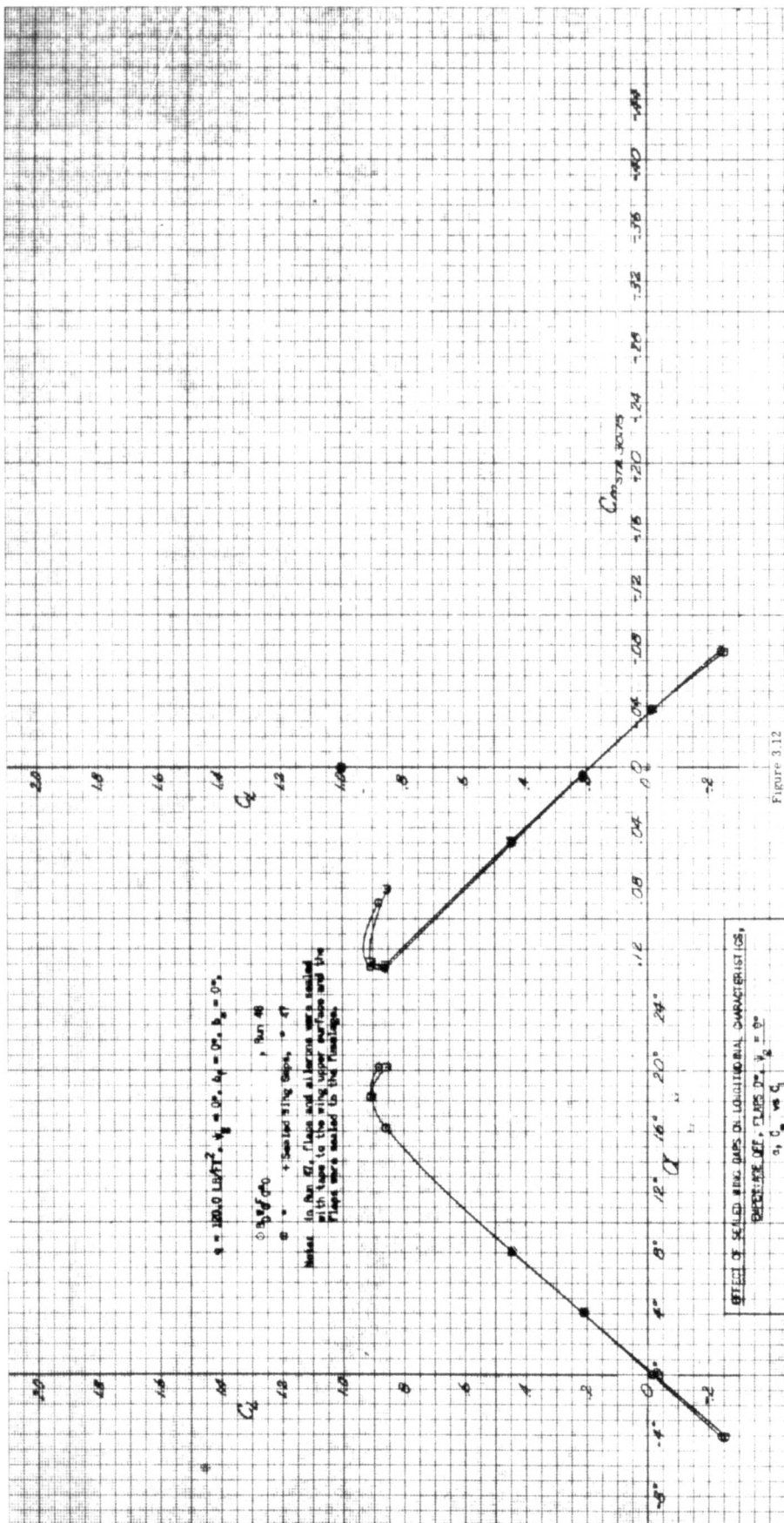


Figure 3.12

EFFECT OF SEALED AILERONS ON LIFTING CHARACTERISTICS,
 EMERGENCY USE, CLAS D $^\circ$, $\beta_0 = 0^\circ$
 α, C_L vs C_L

RUN SYM
 48 \circ
 47 \square

RUN SYM
70 ○
72 □
75 ◇
77 ⌈
80 △

$q = 120.0 \text{ lb/ft}^2$, $N_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, Horizontal Tail Off

○ $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, Run 70
□ $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, Run 72
◇ $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, Run 75
⌈ $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, Run 77
△ $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, $\delta_g = 0.5$, Run 80

ALLIED EFFECTIVENESS IN PITCH WITH ALLIED 90°
HORIZONTAL TAIL OFF, $\delta_g = 0.5$, $\delta_g = 0.5$

Figure 3.13

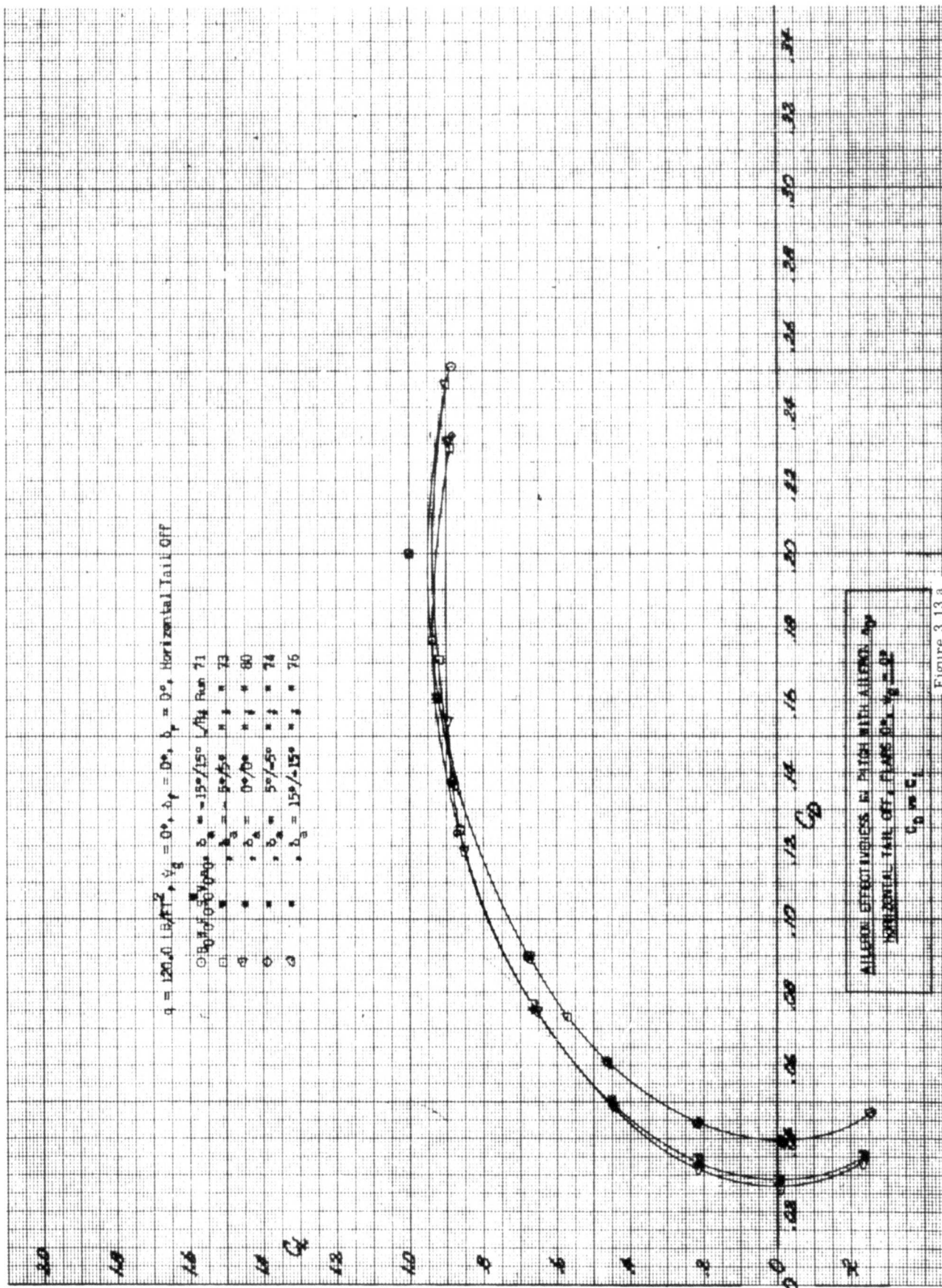


Figure 3.13 a

RUN SYM
 71 ○
 73 □
 74 ◇
 76 ▽
 80 ▿

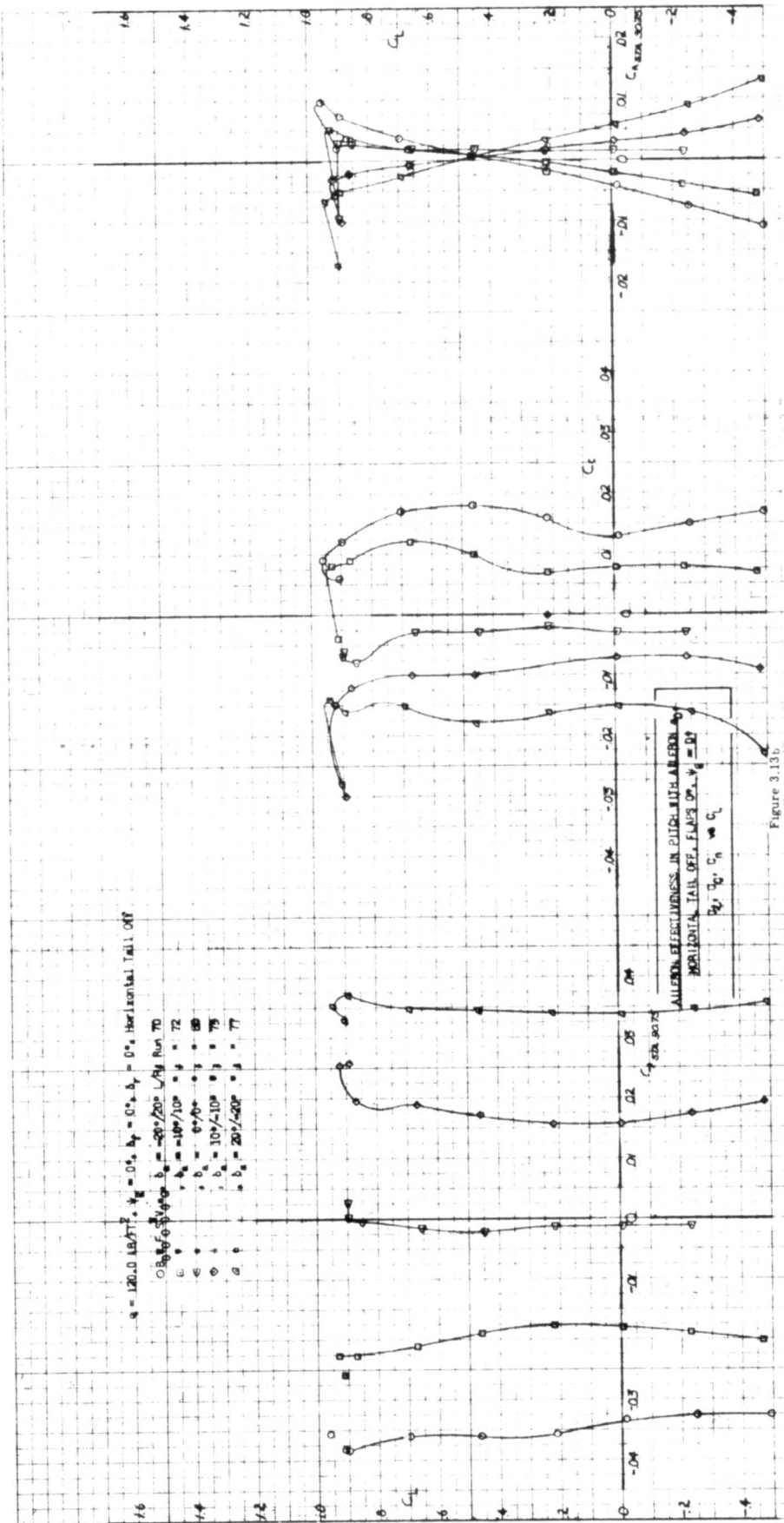


Figure 3.13b

RUN SYM
 70 \bigcirc
 72 \square
 75 \diamond
 77 \triangle
 80 \bigcirc

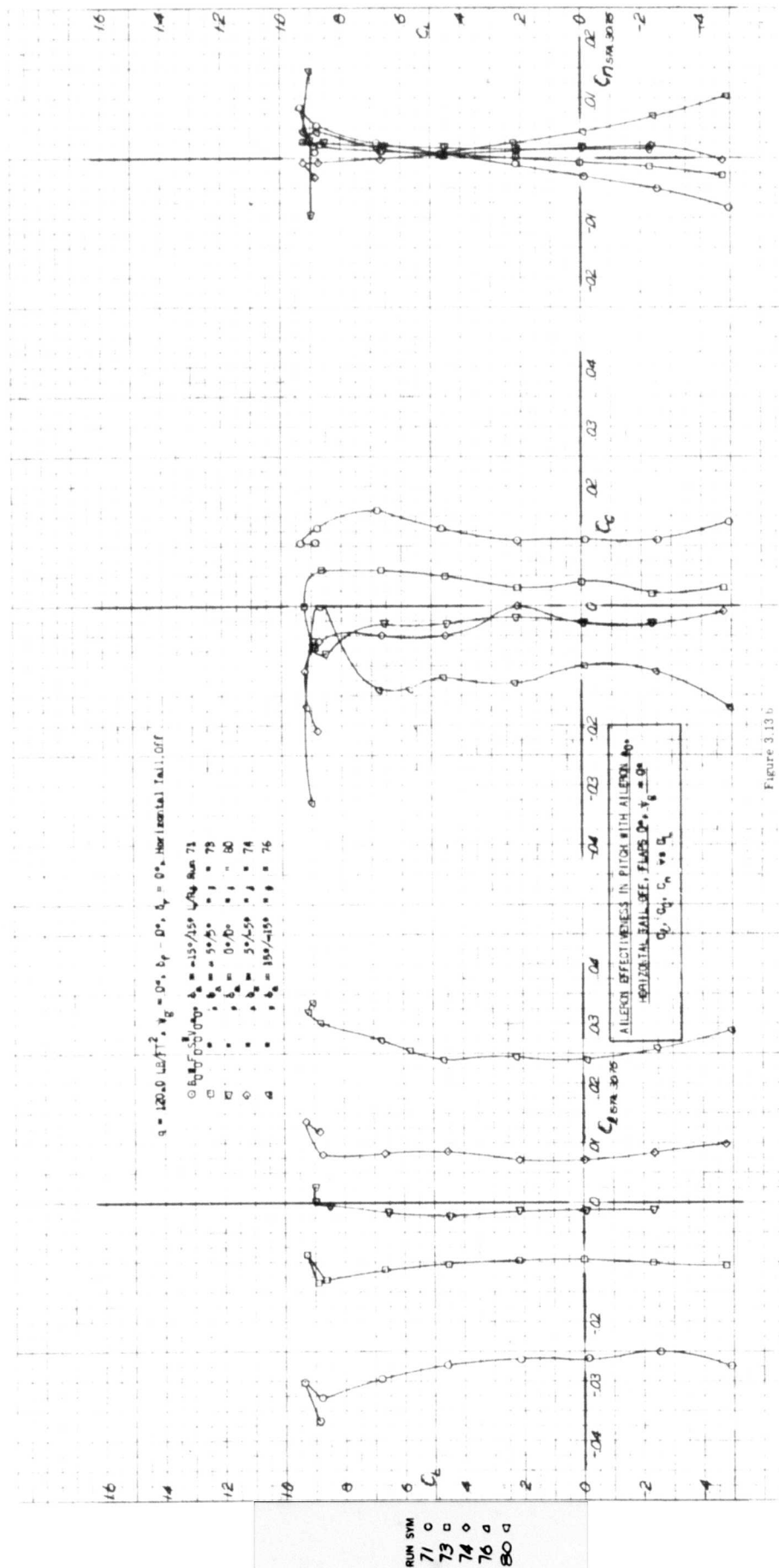
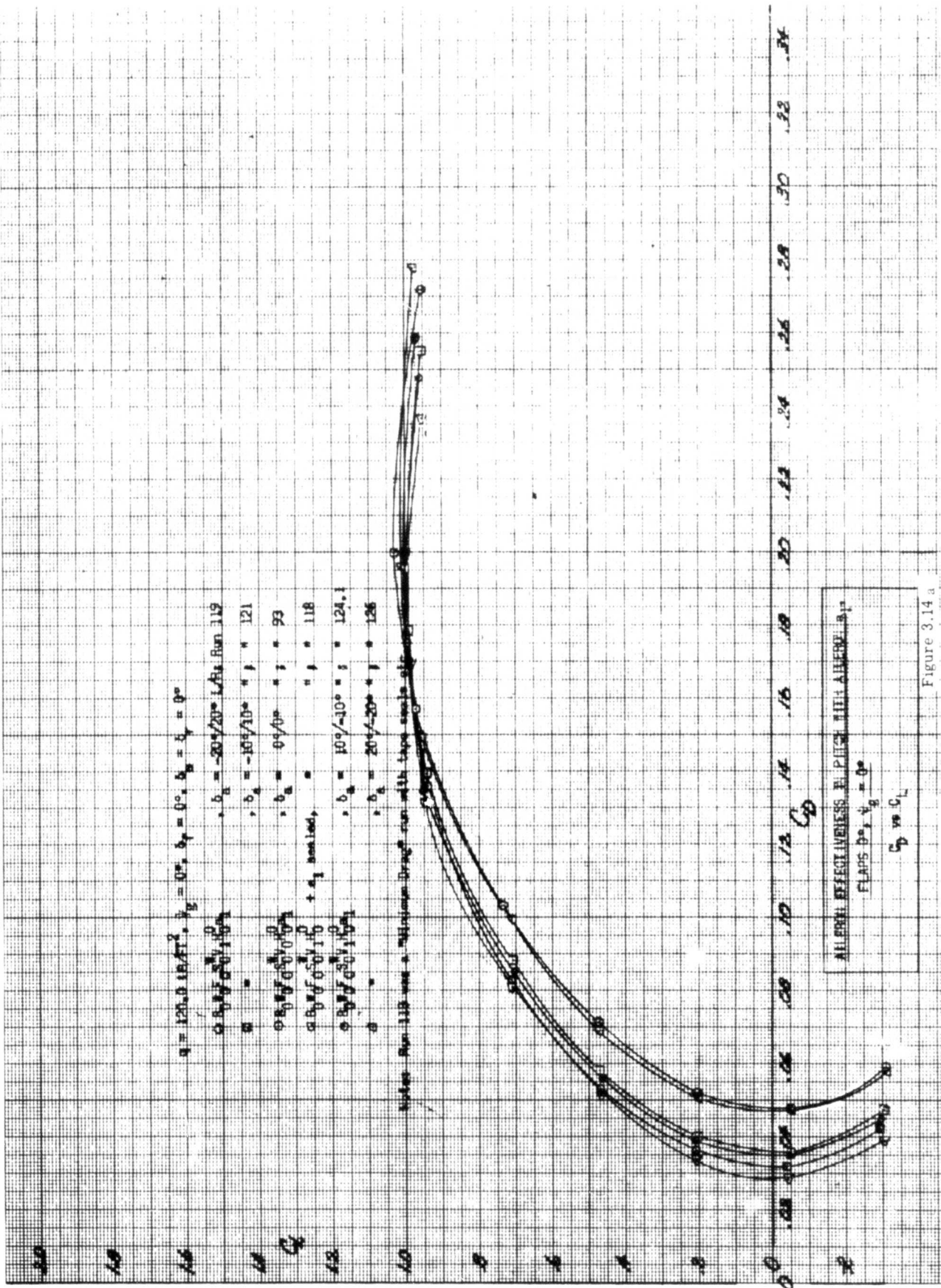


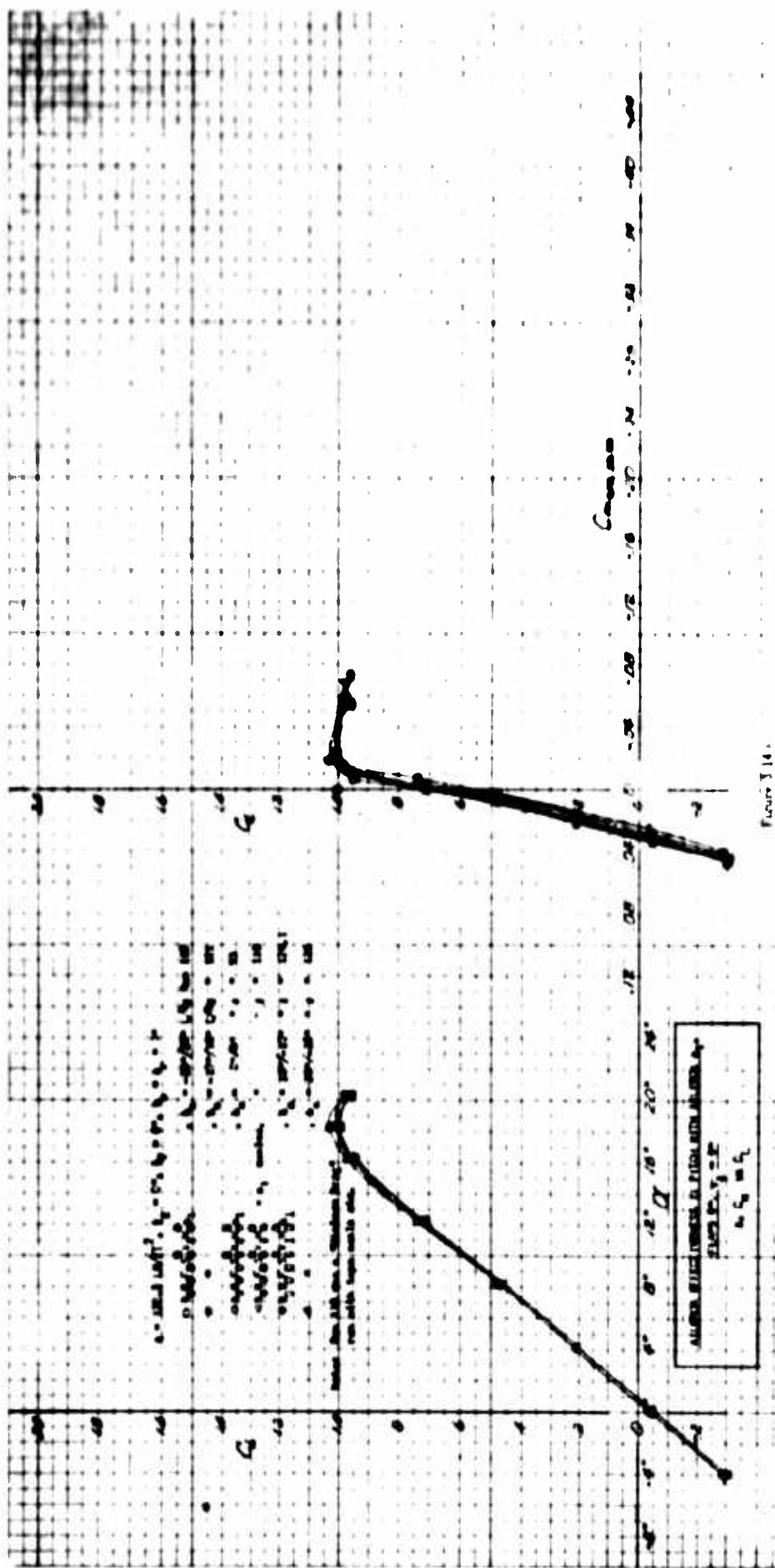
Figure 3.13 b

RUN SYM
 71 \square
 73 \square
 74 \diamond
 76 \diamond
 80 \square

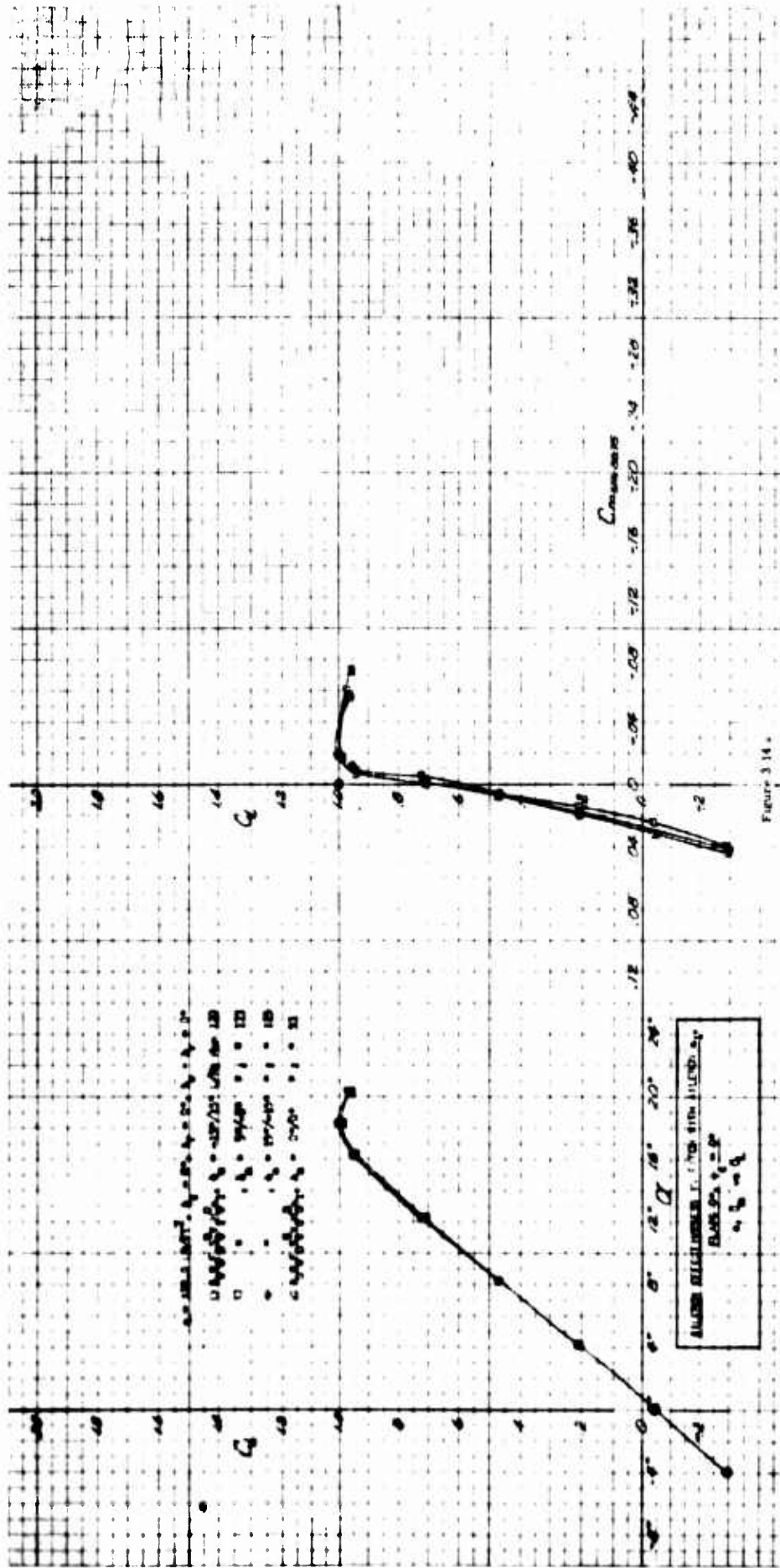


RUN	SYM
119	○
121	□
124-1	◇
126	◊
93	○
118	◇

Figure 3.14 a



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



$\frac{1}{2} \pi \approx 1.5708$
 $\frac{1}{3} \pi \approx 1.0472$
 $\frac{1}{4} \pi \approx 0.7854$
 $\frac{1}{6} \pi \approx 0.5236$
 $\frac{1}{8} \pi \approx 0.3927$
 $\frac{1}{10} \pi \approx 0.3142$
 $\frac{1}{12} \pi \approx 0.2618$
 $\frac{1}{15} \pi \approx 0.2094$
 $\frac{1}{18} \pi \approx 0.1745$
 $\frac{1}{20} \pi \approx 0.1571$
 $\frac{1}{25} \pi \approx 0.1257$
 $\frac{1}{30} \pi \approx 0.1047$
 $\frac{1}{36} \pi \approx 0.0873$
 $\frac{1}{40} \pi \approx 0.0785$
 $\frac{1}{45} \pi \approx 0.0698$
 $\frac{1}{50} \pi \approx 0.0628$
 $\frac{1}{60} \pi \approx 0.0524$
 $\frac{1}{72} \pi \approx 0.0436$
 $\frac{1}{90} \pi \approx 0.0349$
 $\frac{1}{108} \pi \approx 0.0291$
 $\frac{1}{120} \pi \approx 0.0262$
 $\frac{1}{144} \pi \approx 0.0209$
 $\frac{1}{180} \pi \approx 0.0175$
 $\frac{1}{216} \pi \approx 0.0146$
 $\frac{1}{270} \pi \approx 0.0111$
 $\frac{1}{324} \pi \approx 0.0090$
 $\frac{1}{360} \pi \approx 0.0087$

TABLE 3.14
 Values of $\sin x$ and $\cos x$ for x in radians
 (Values are given to four decimal places)

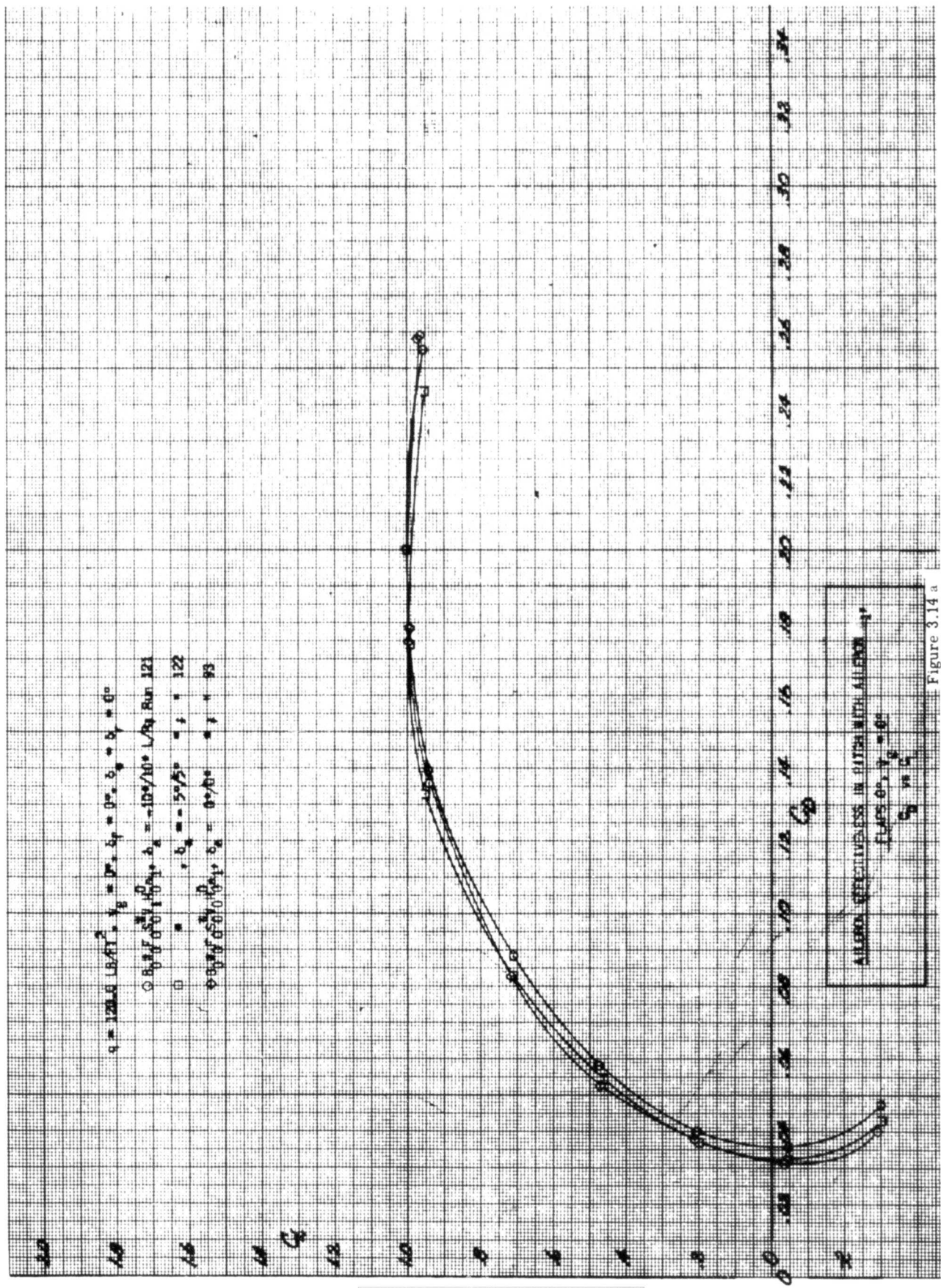


Figure 3.14 a

RUN SYM
 121 \diamond
 122 \square
 93 \circ

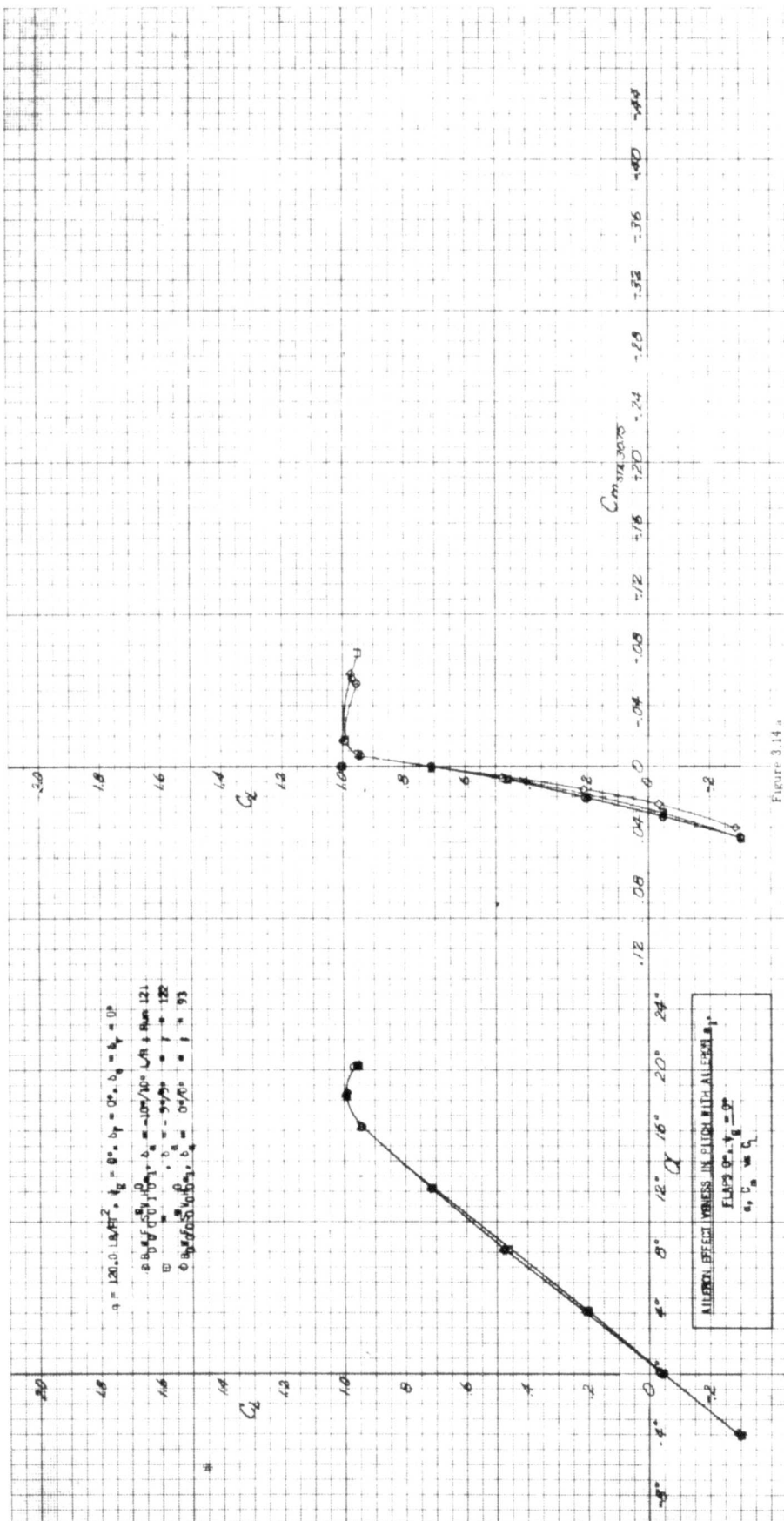
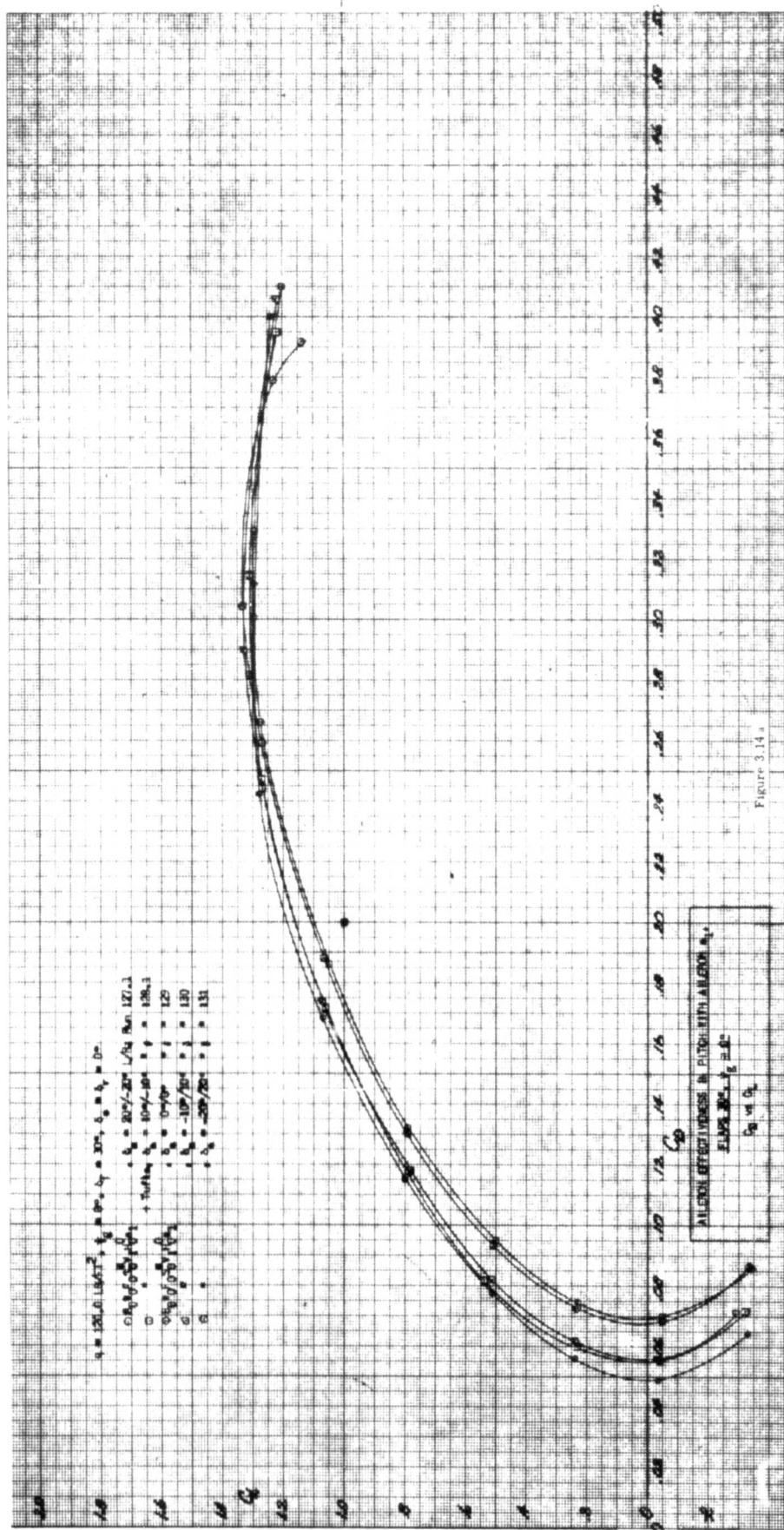
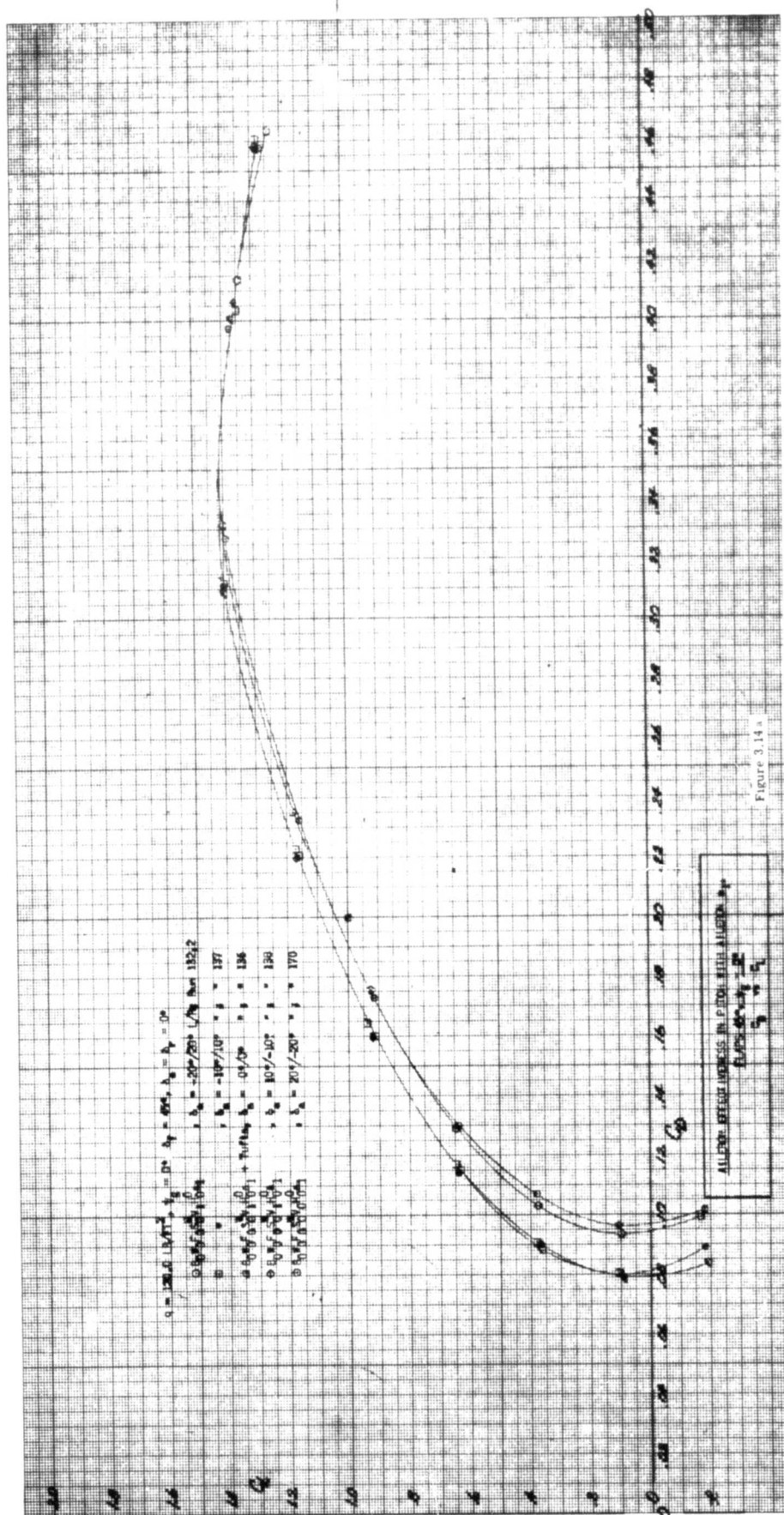


Figure 3.14



RUN SYM

127-1	0
128-1	□
129	◇
130	△
131	○



RUN SYM
 132-2 O
 137 □
 139 ◇
 136 Δ
 170 ○

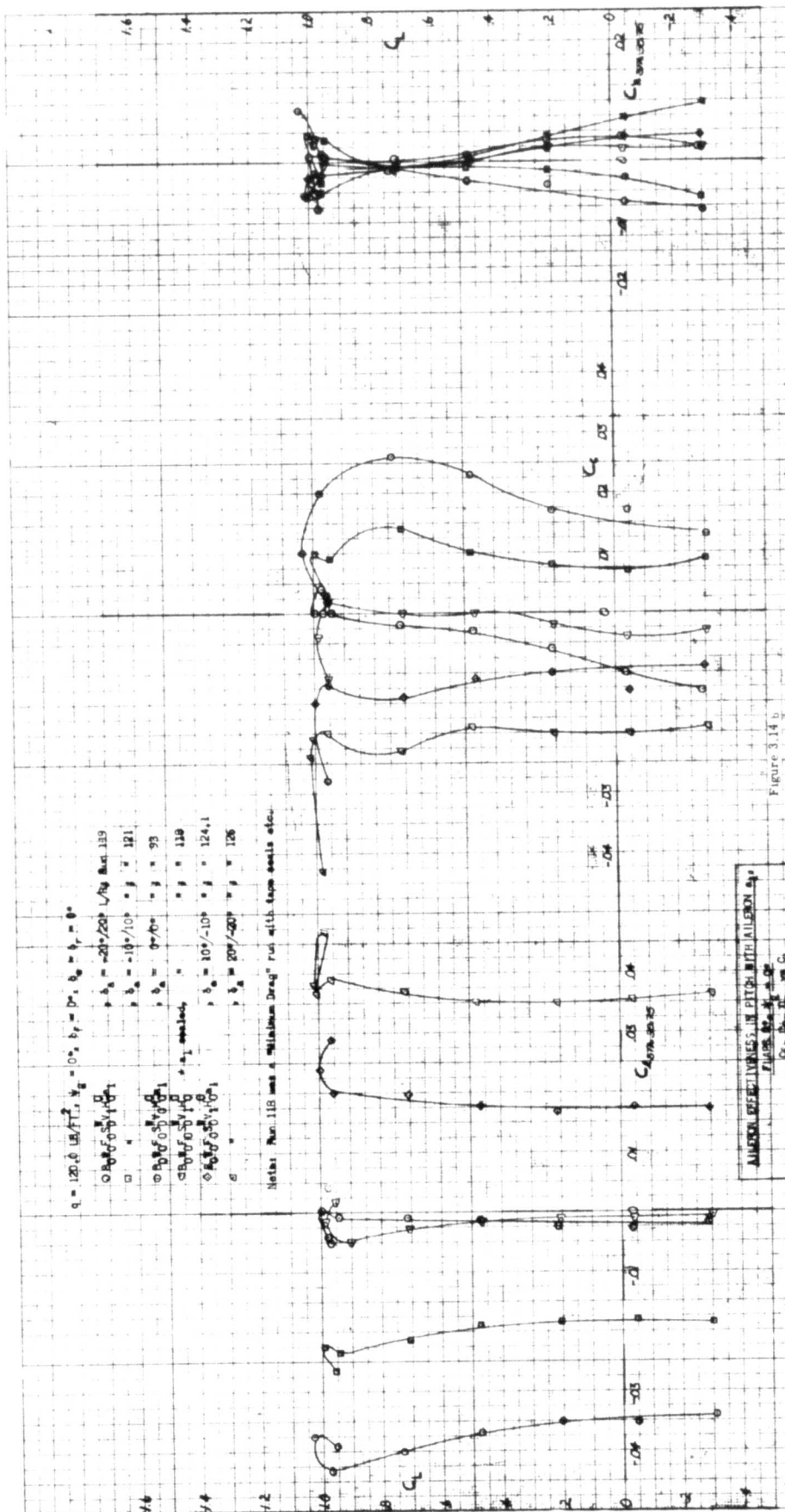


Figure 3.14 b

AERODYNAMIC COEFFICIENTS IN PITCH WITH TAILORON δ_a
 Pitch $\delta_a = 0^\circ$
 C_L , C_D , C_M , C_N vs α

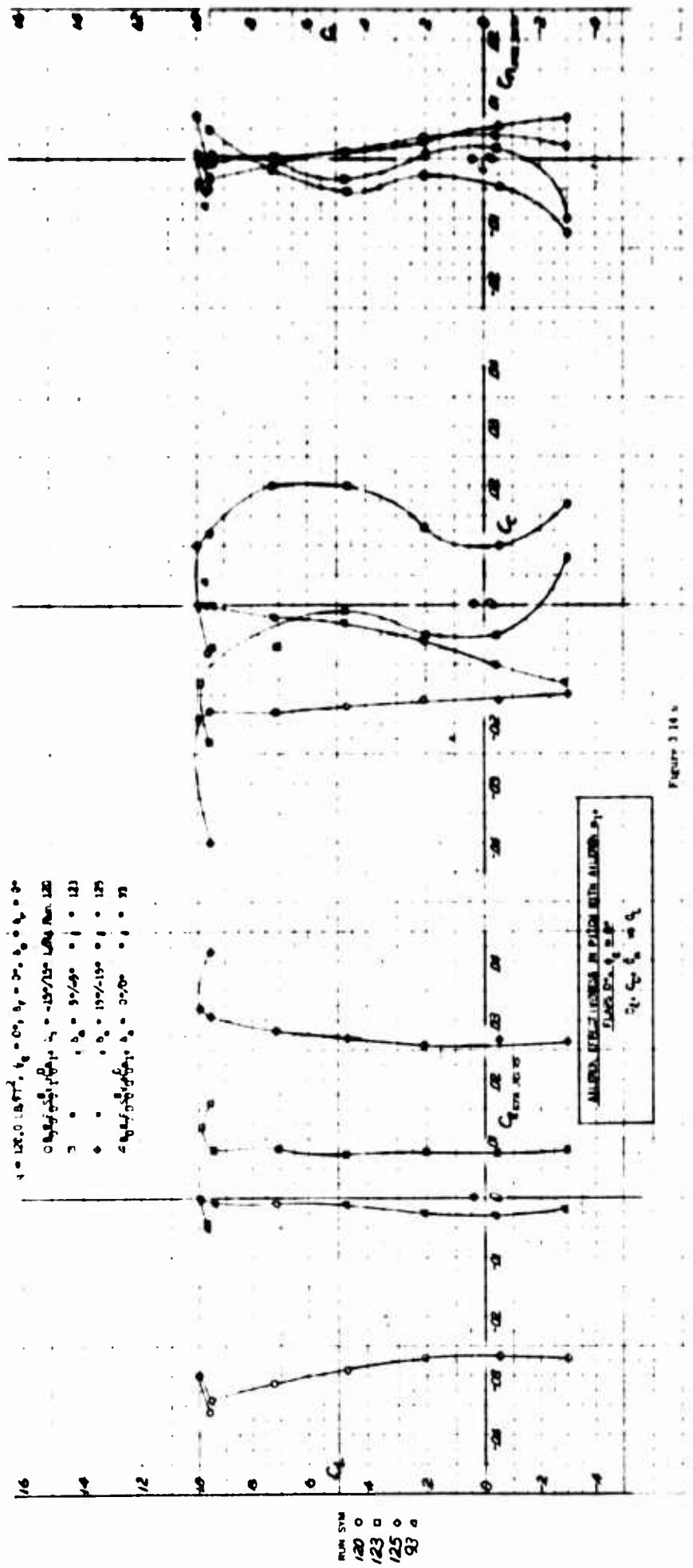


Figure 3.14 a

$C_p = 0.0, C_m = 0.0$
 $C_p = 0.0, C_m = 0.0$
 $C_p = 0.0, C_m = 0.0$
 $C_p = 0.0, C_m = 0.0$

ALL DATA OBTAINED FROM PLOT OF C_p AND C_m WITH α
 USING $C_p = 0.0, C_m = 0.0$
 $C_p = 0.0, C_m = 0.0$

RUN 578
 120 0
 123 0
 125 0
 93 0

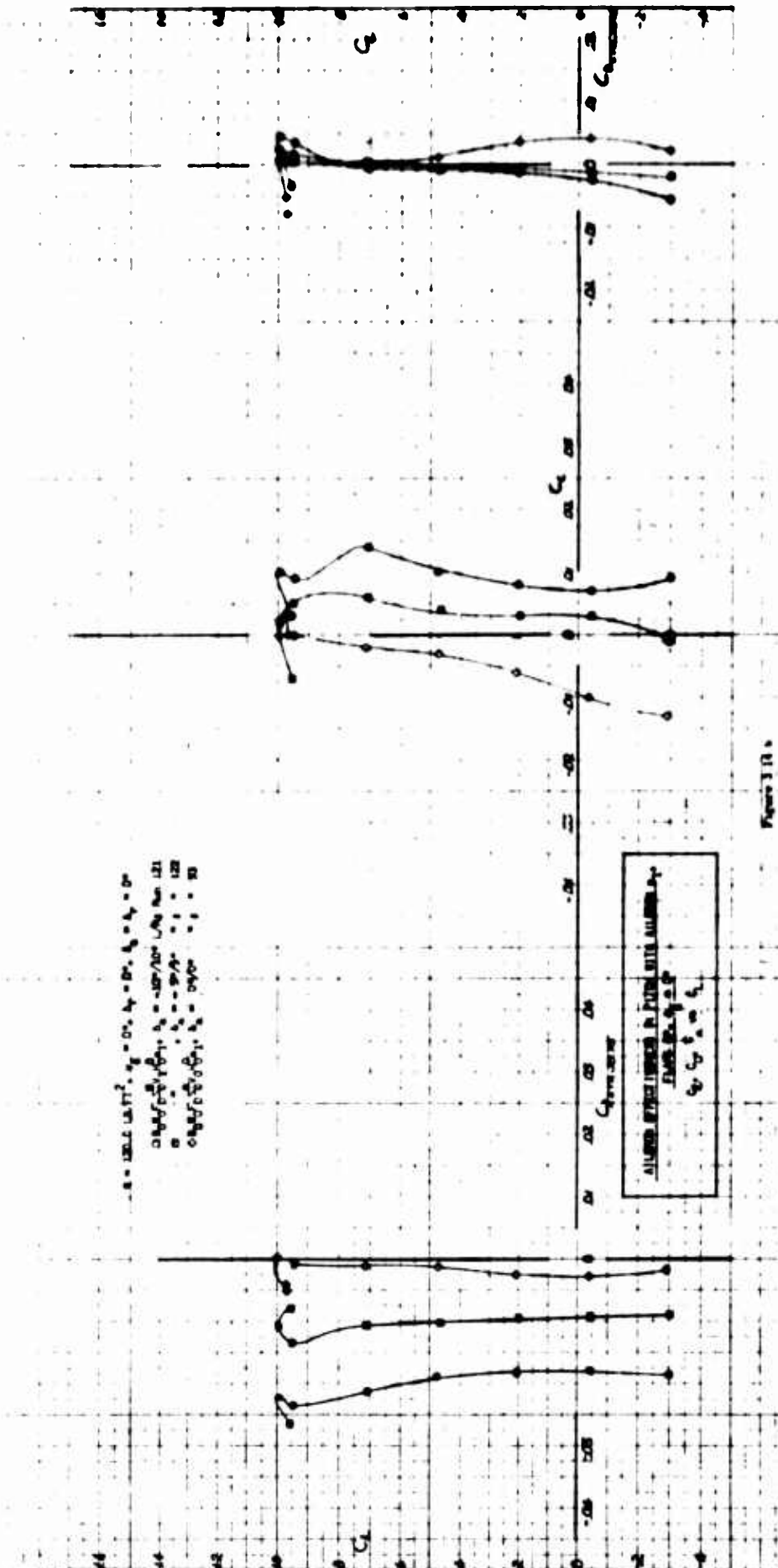


Figure 3.11

PLATE 3118
121 0
122 0
93 0



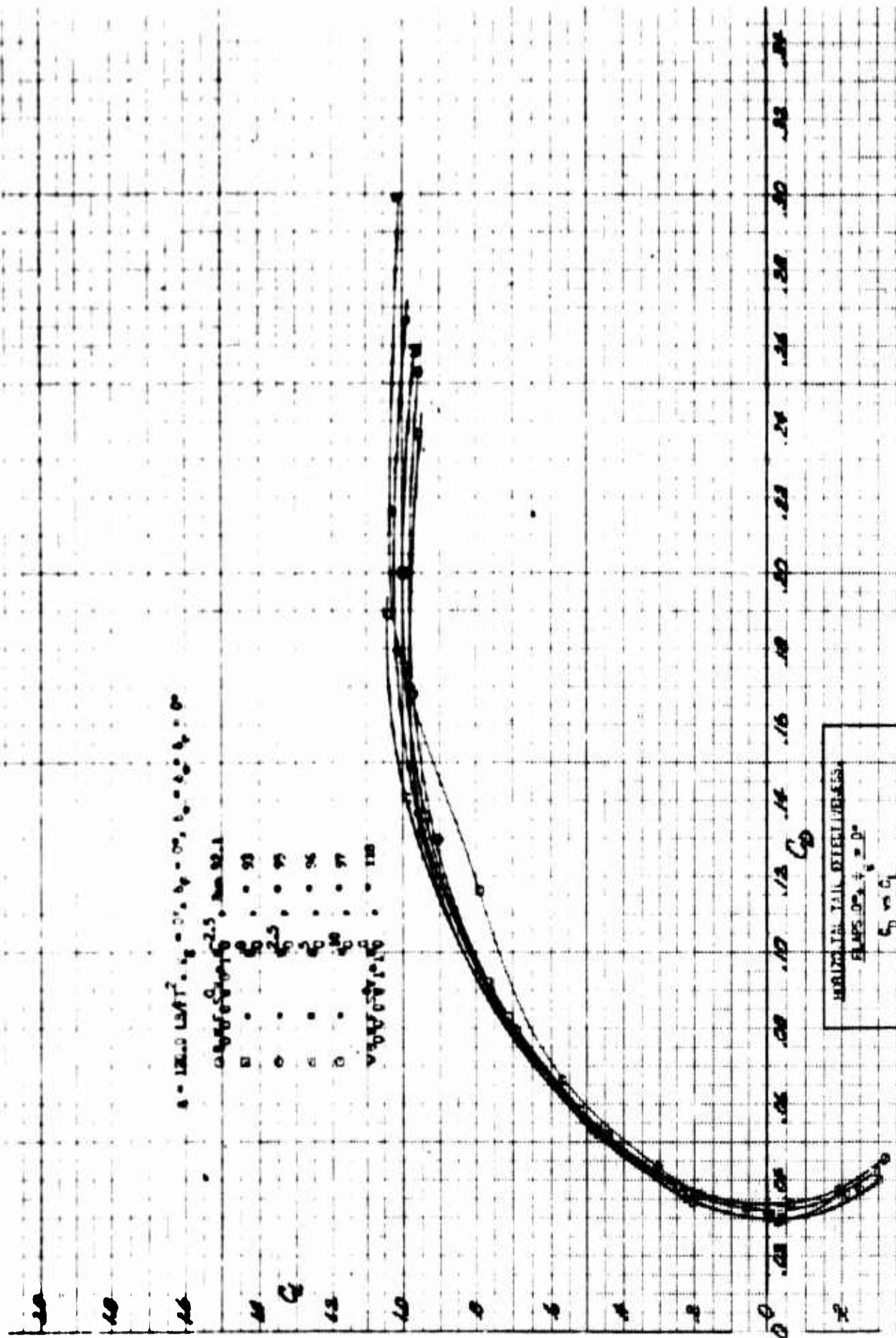


Figure 3.15

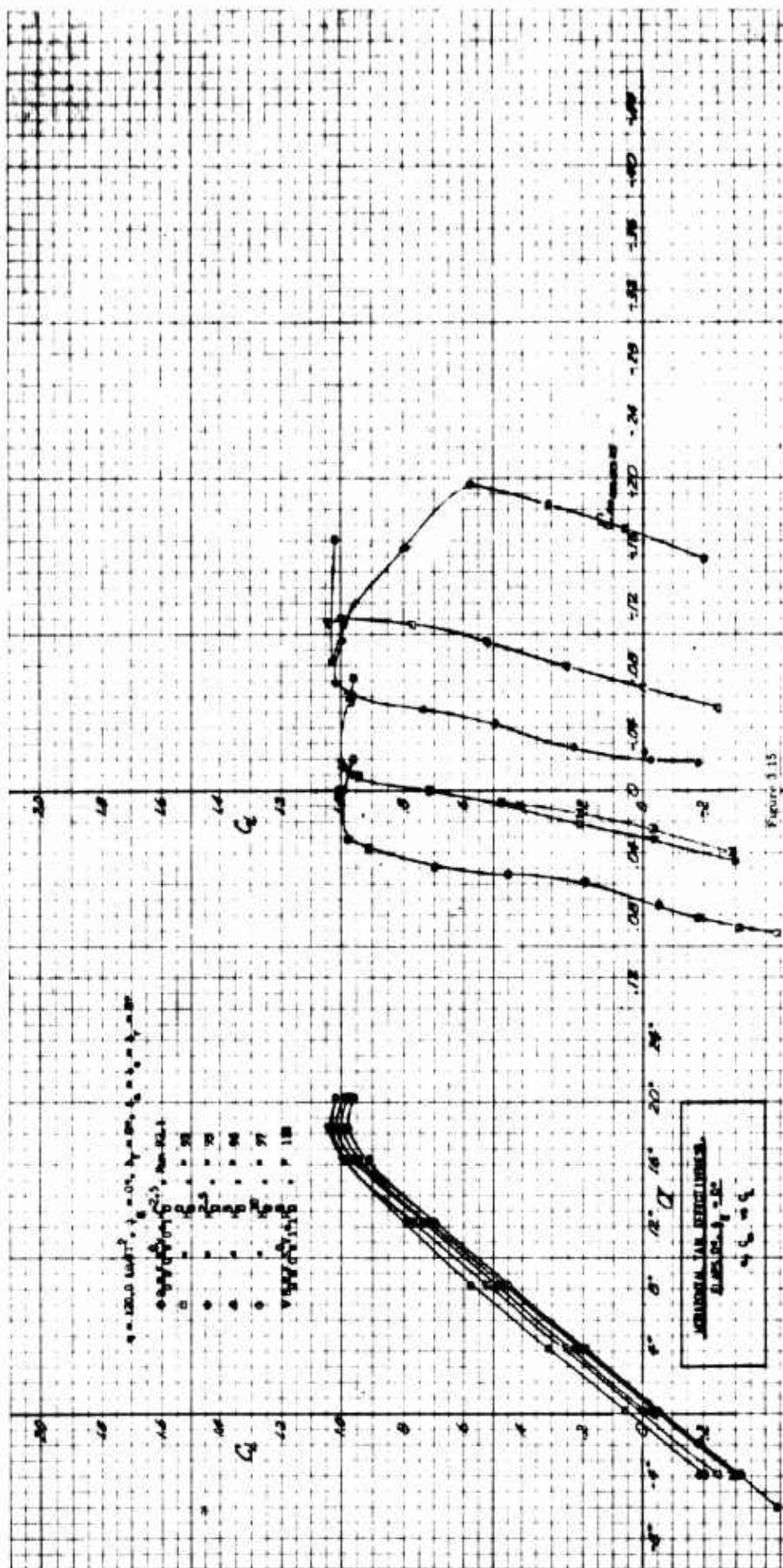


Figure 3.15

RUN 574
7.2 1
9.7
11.2

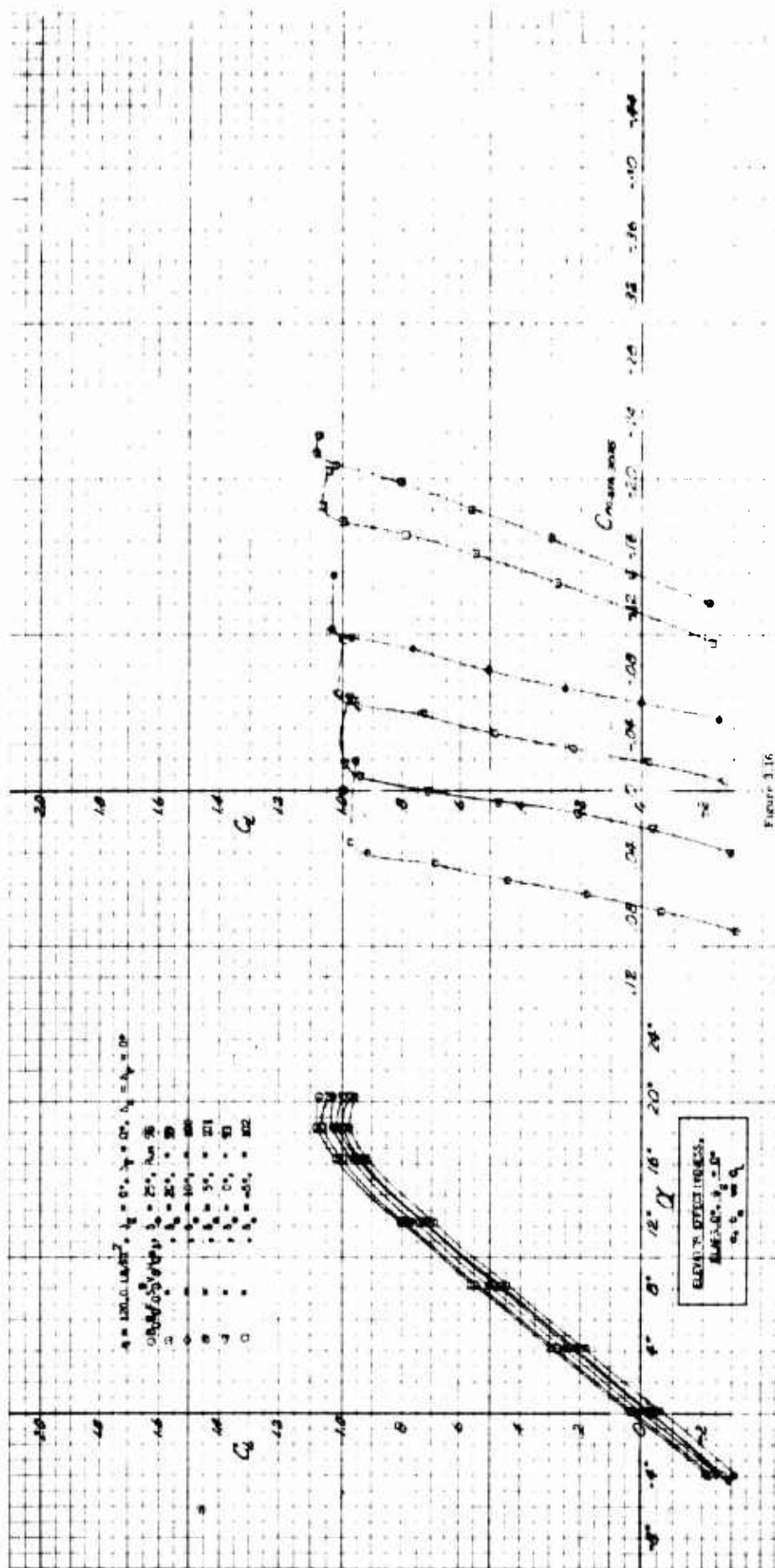


Figure 3.16

RUN SYM
70
77
101
102



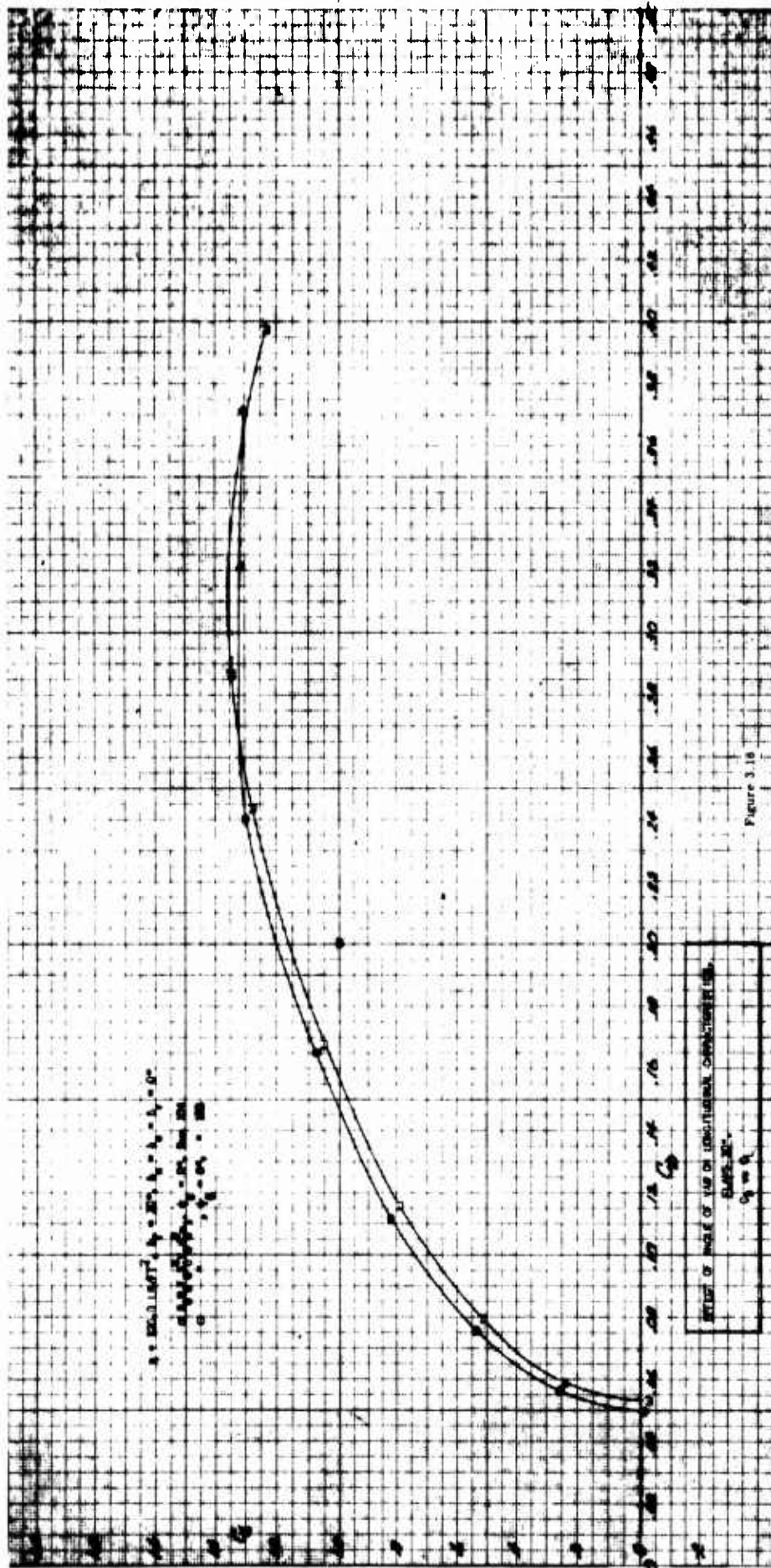
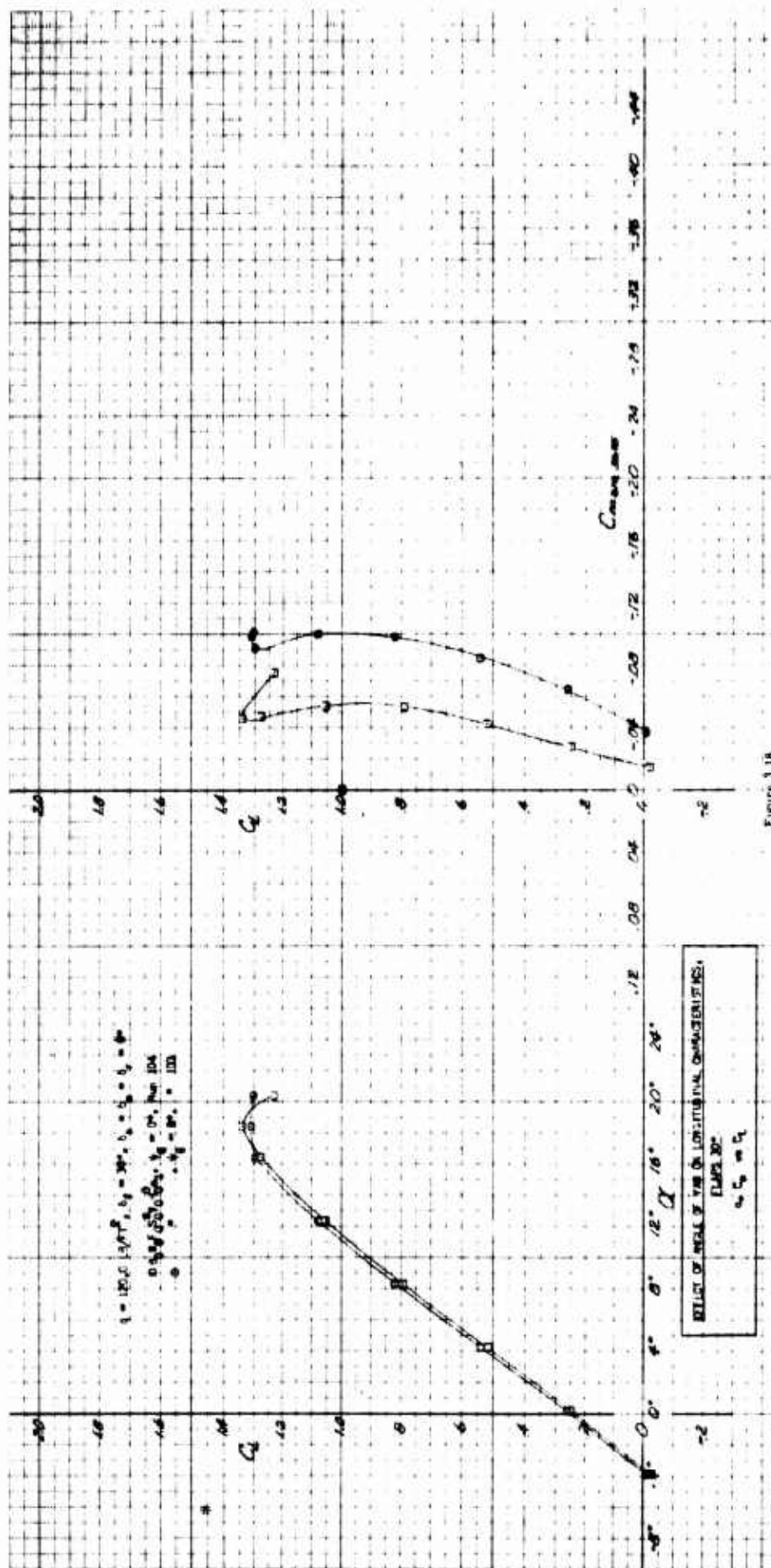
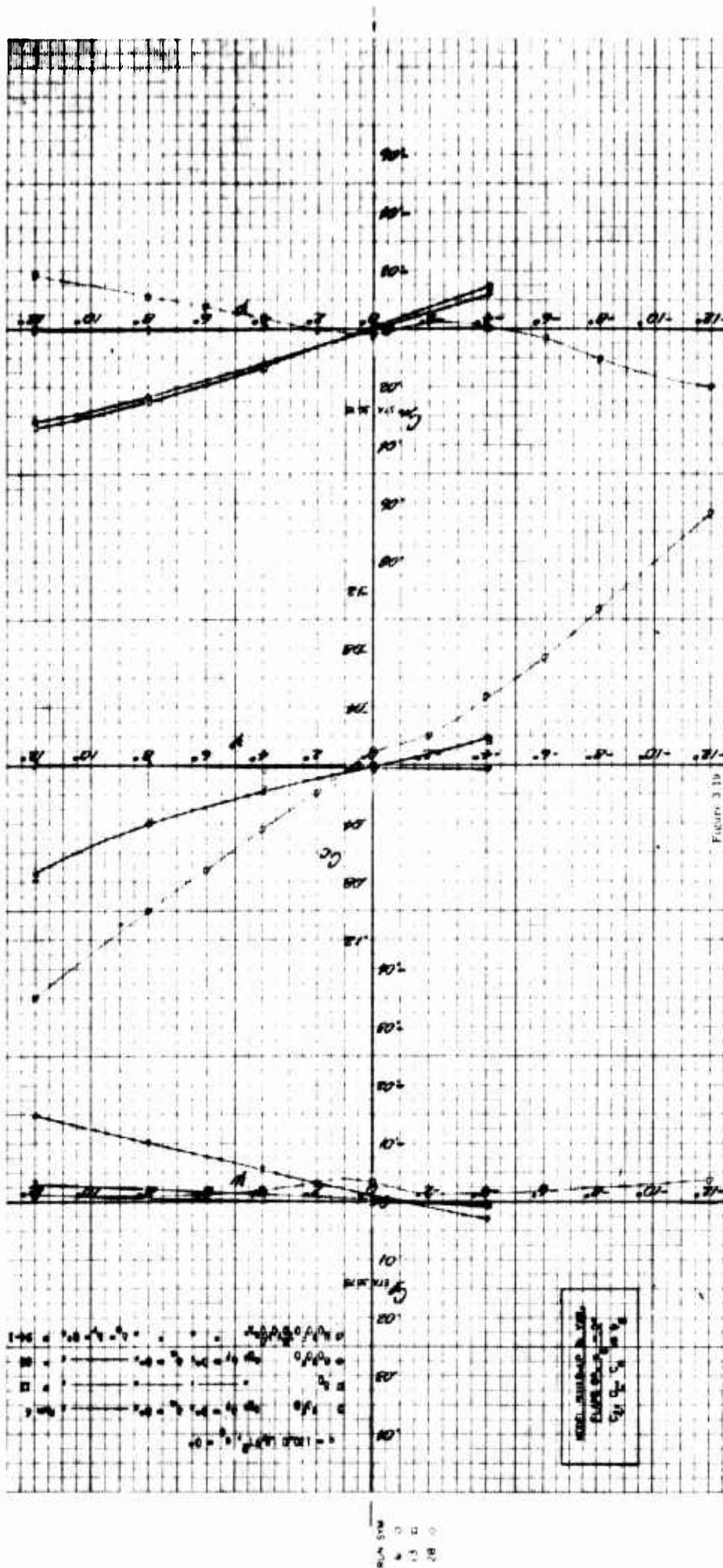
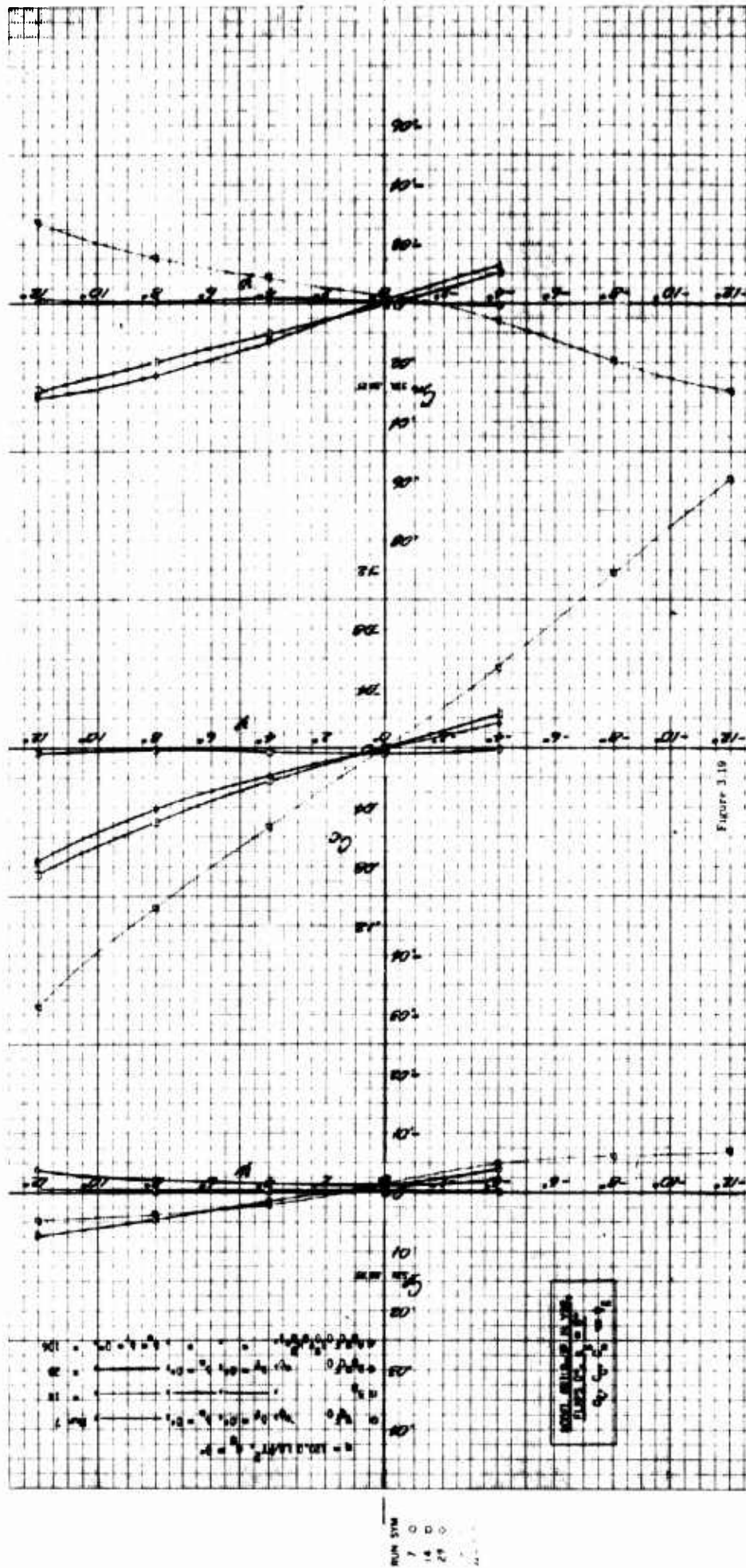


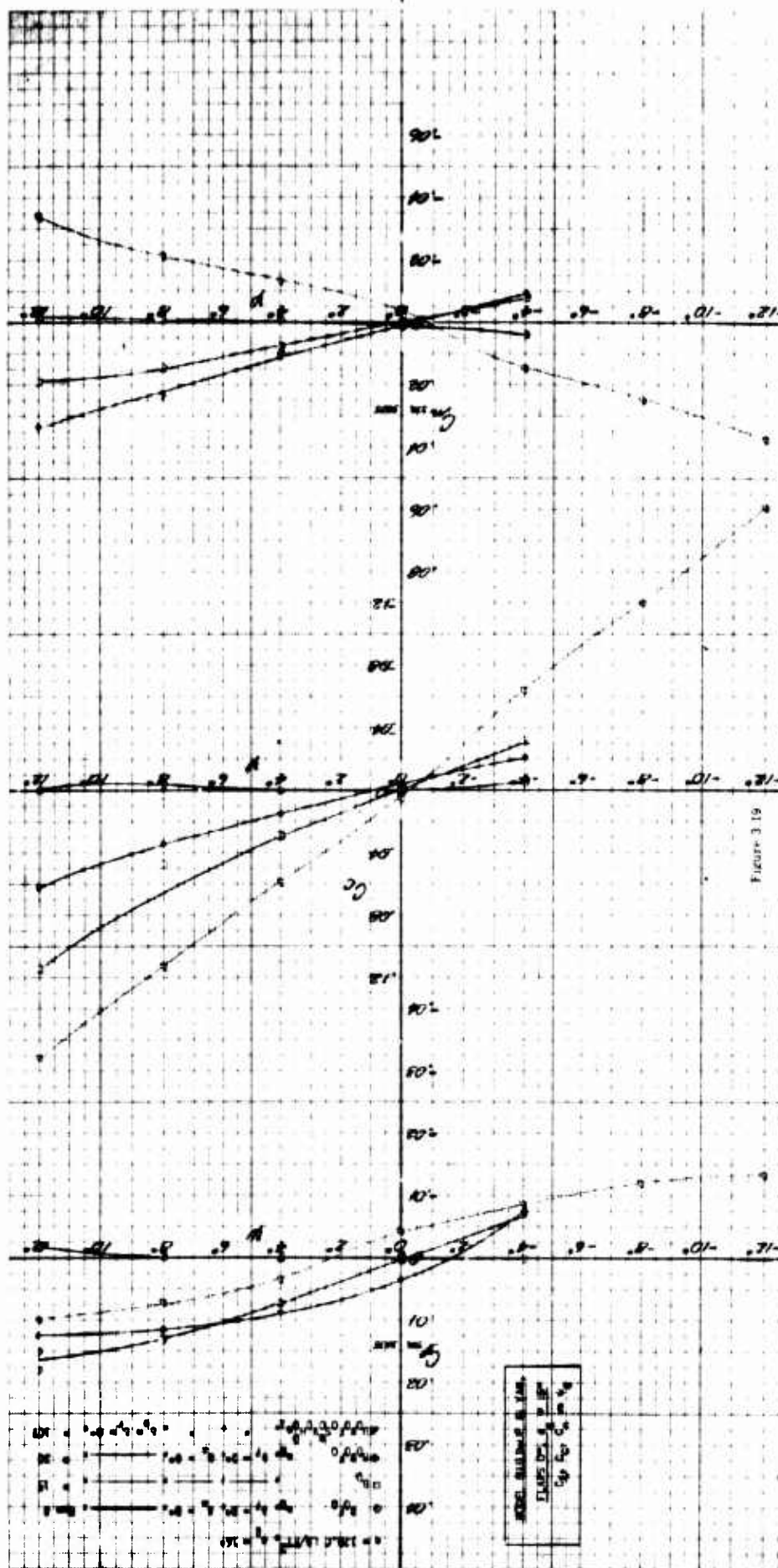
Figure 3.18

PLAN 57M
 103 C
 104 D

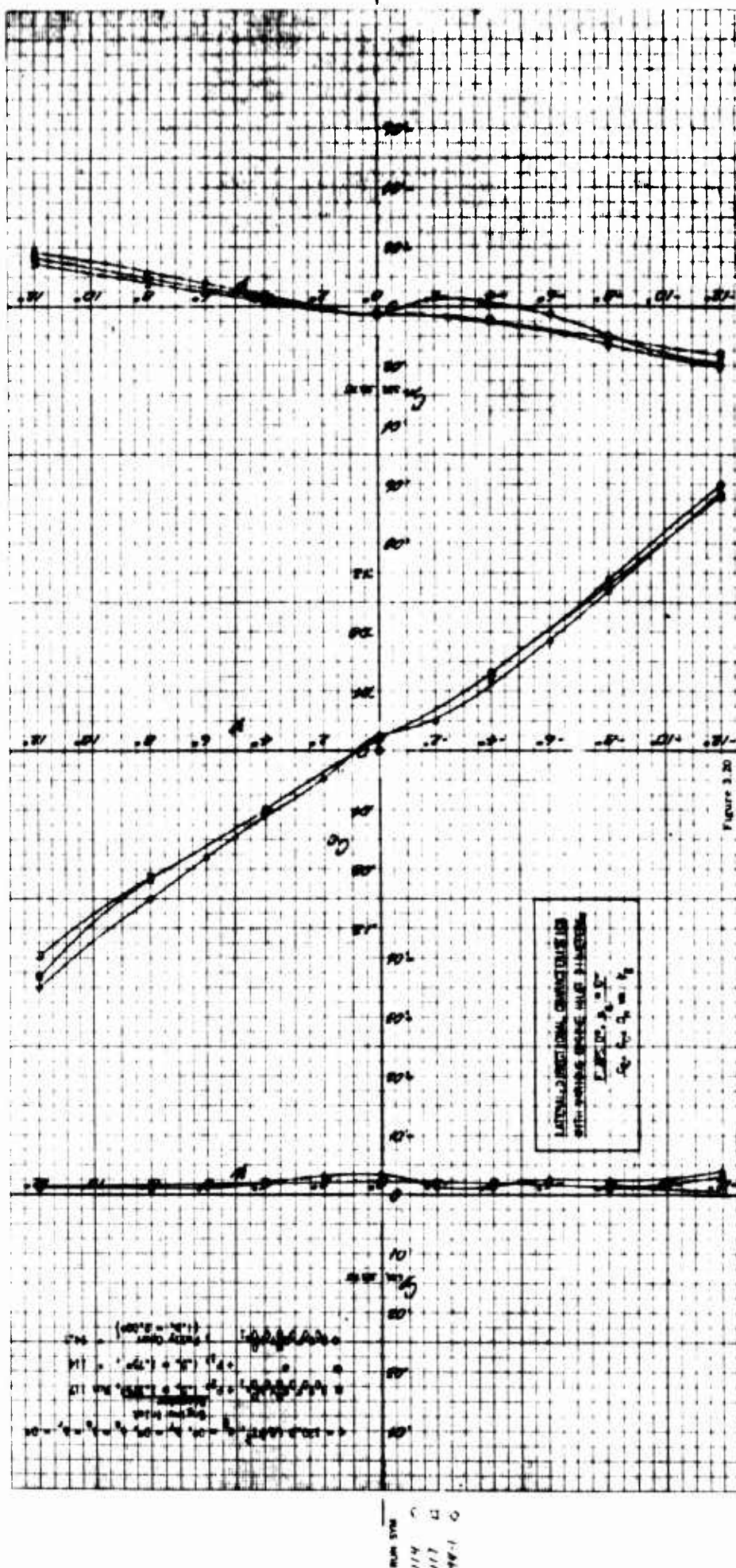


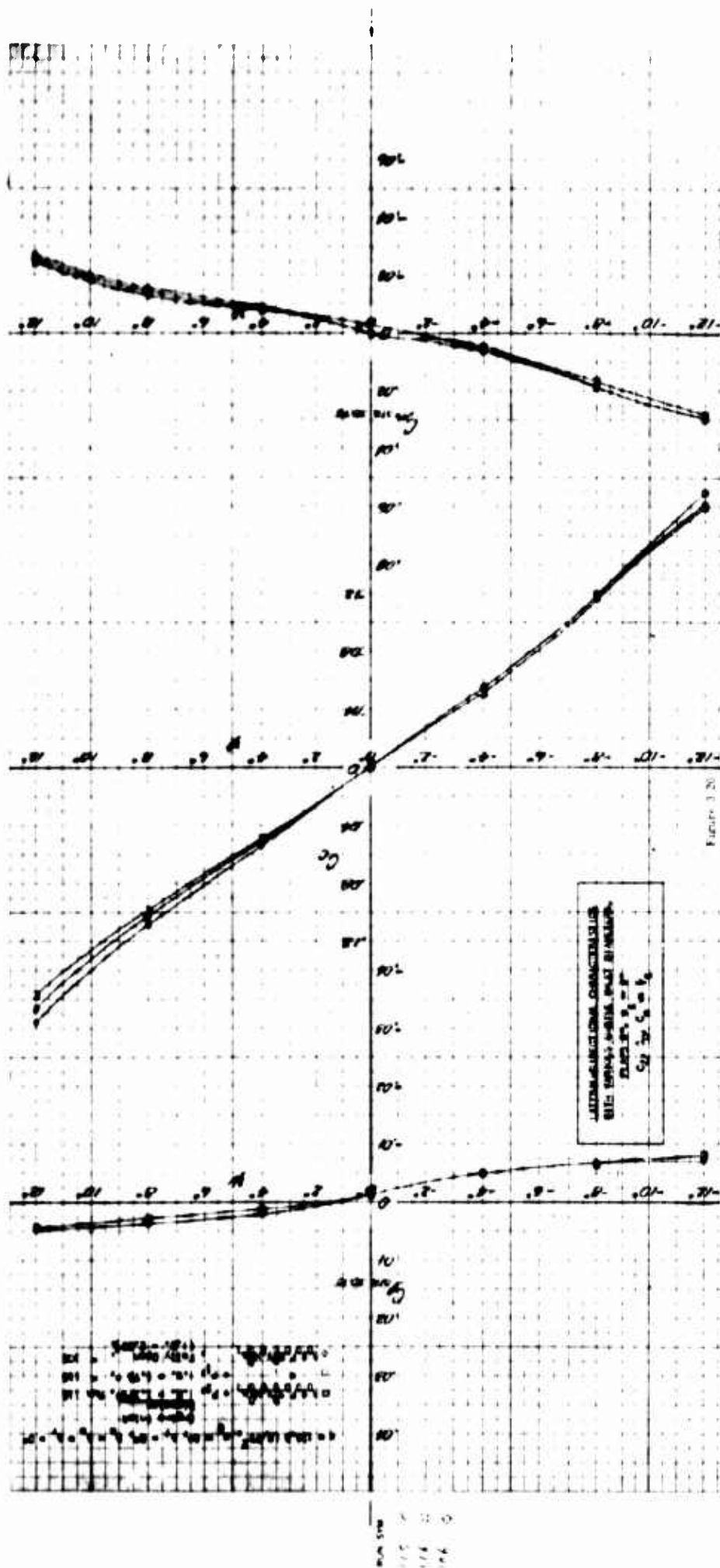






5. 15. 5





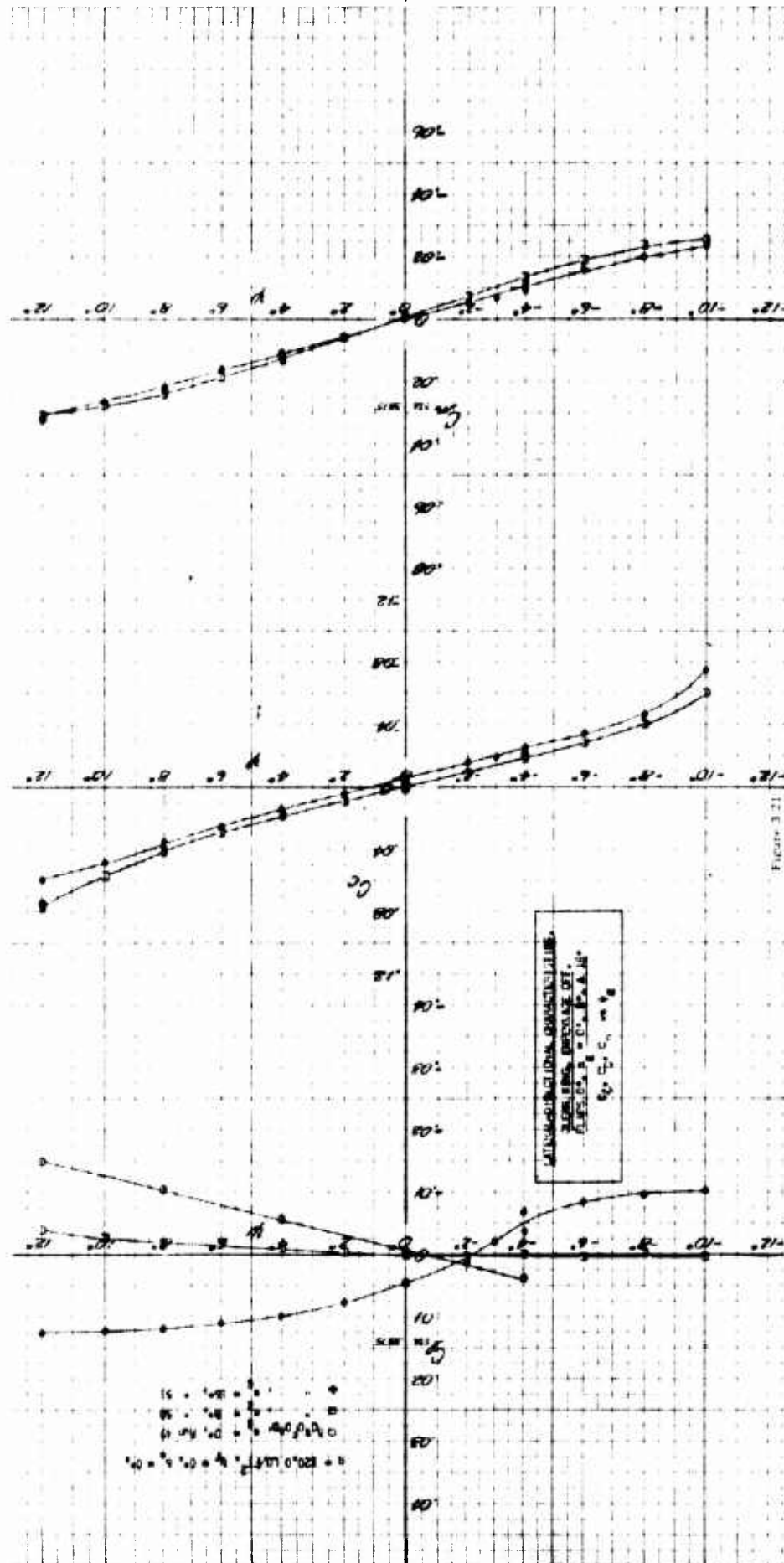
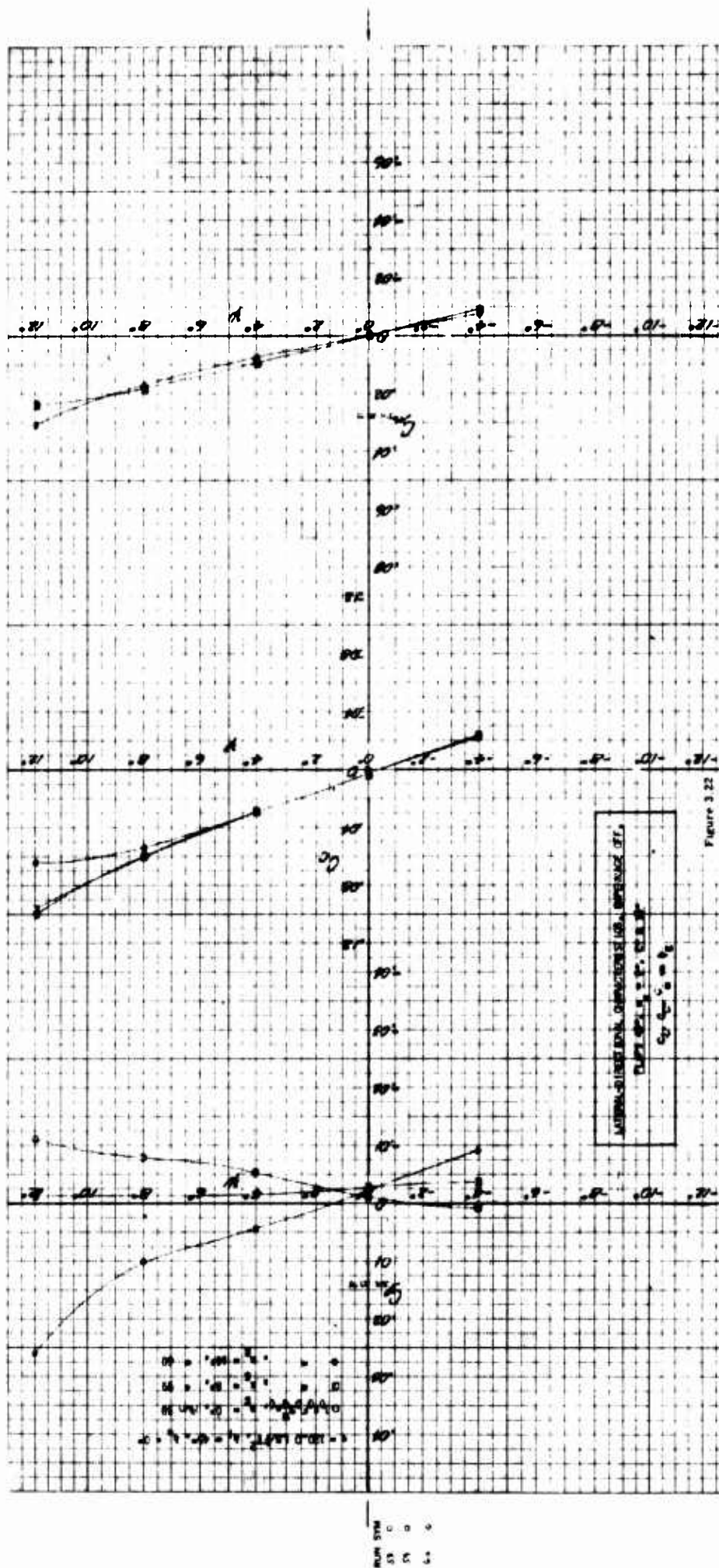
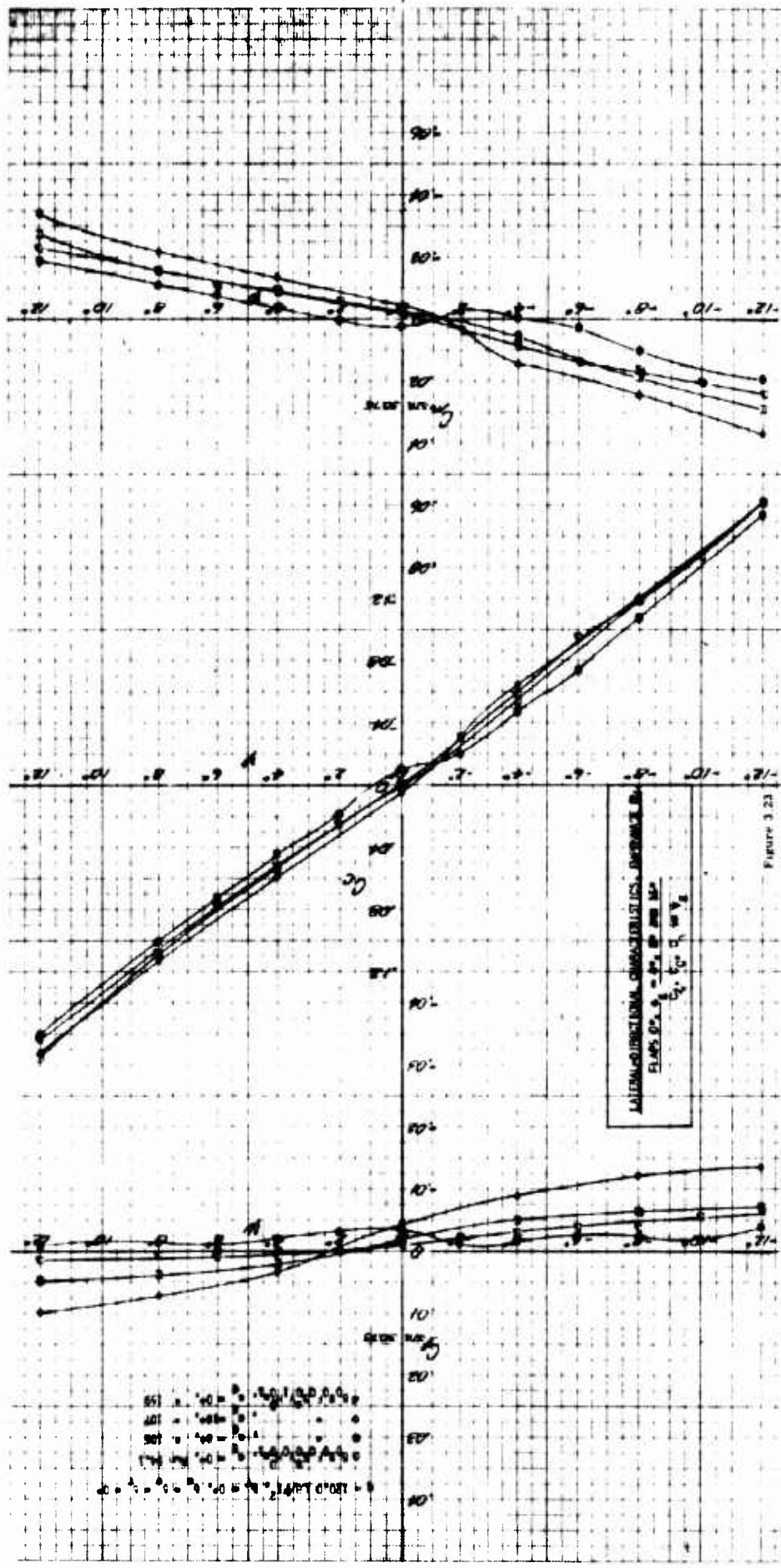


Figure 3.21

43 0
50 0
51 0





LATERAL-DIRECTIONAL CHARACTERISTICS, DYNAMIC q
 $q = \frac{1}{2} \rho V^2$
 $\rho = \text{air density}$
 $V = \text{velocity}$

Figure 3.23

RUN SYN
 14
 102
 107
 159

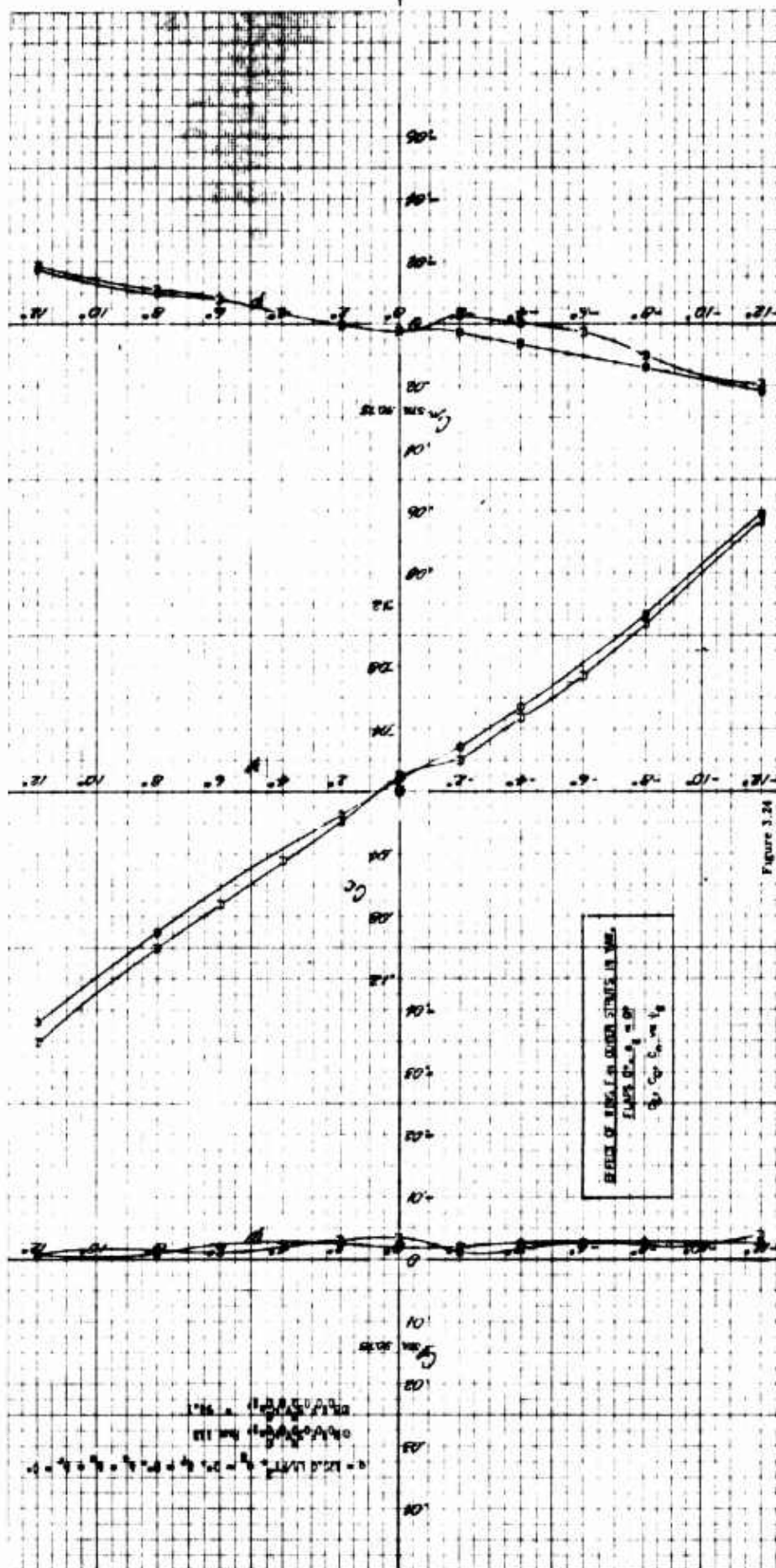


Figure 3.24

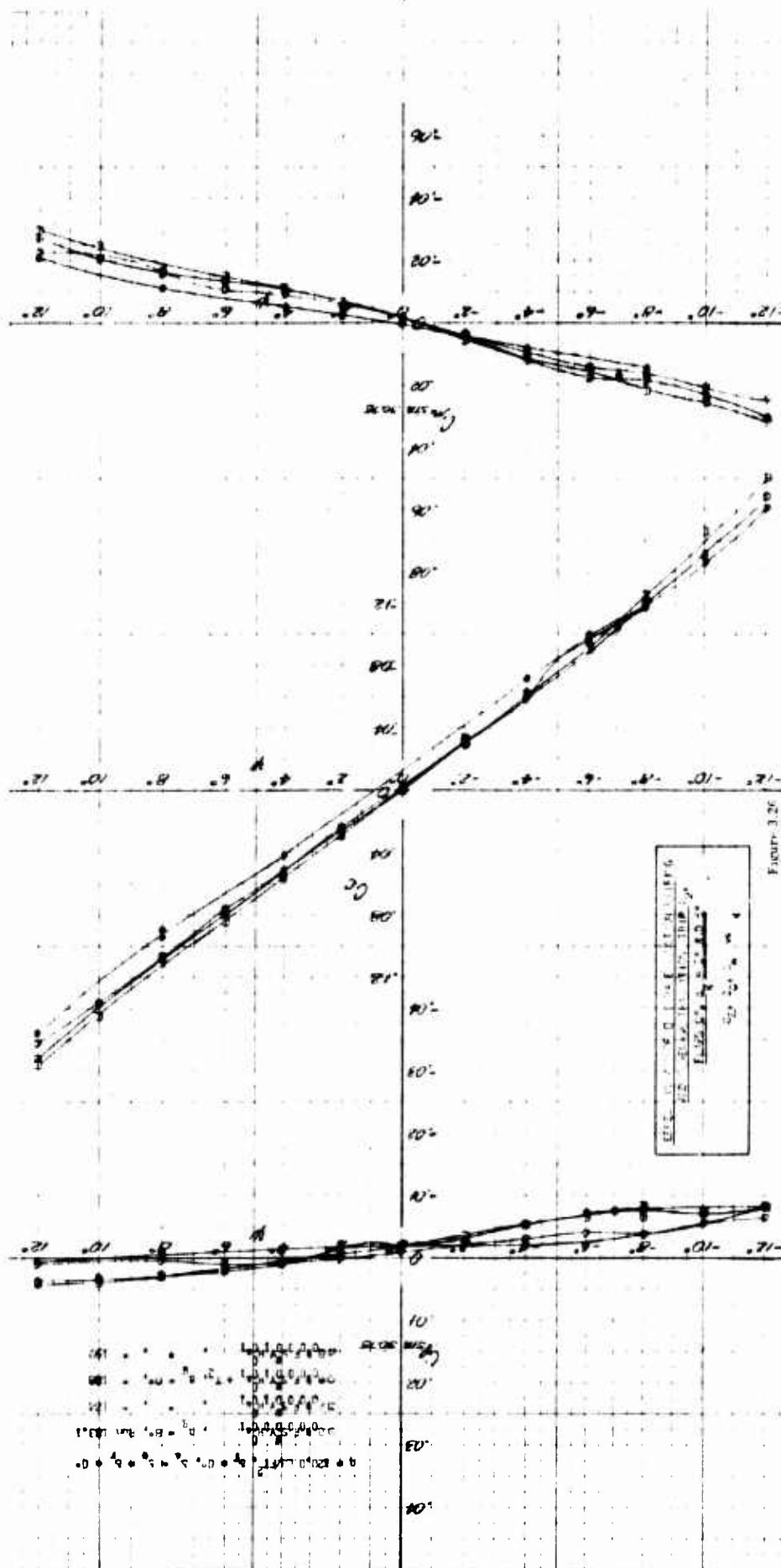


Figure 3.26

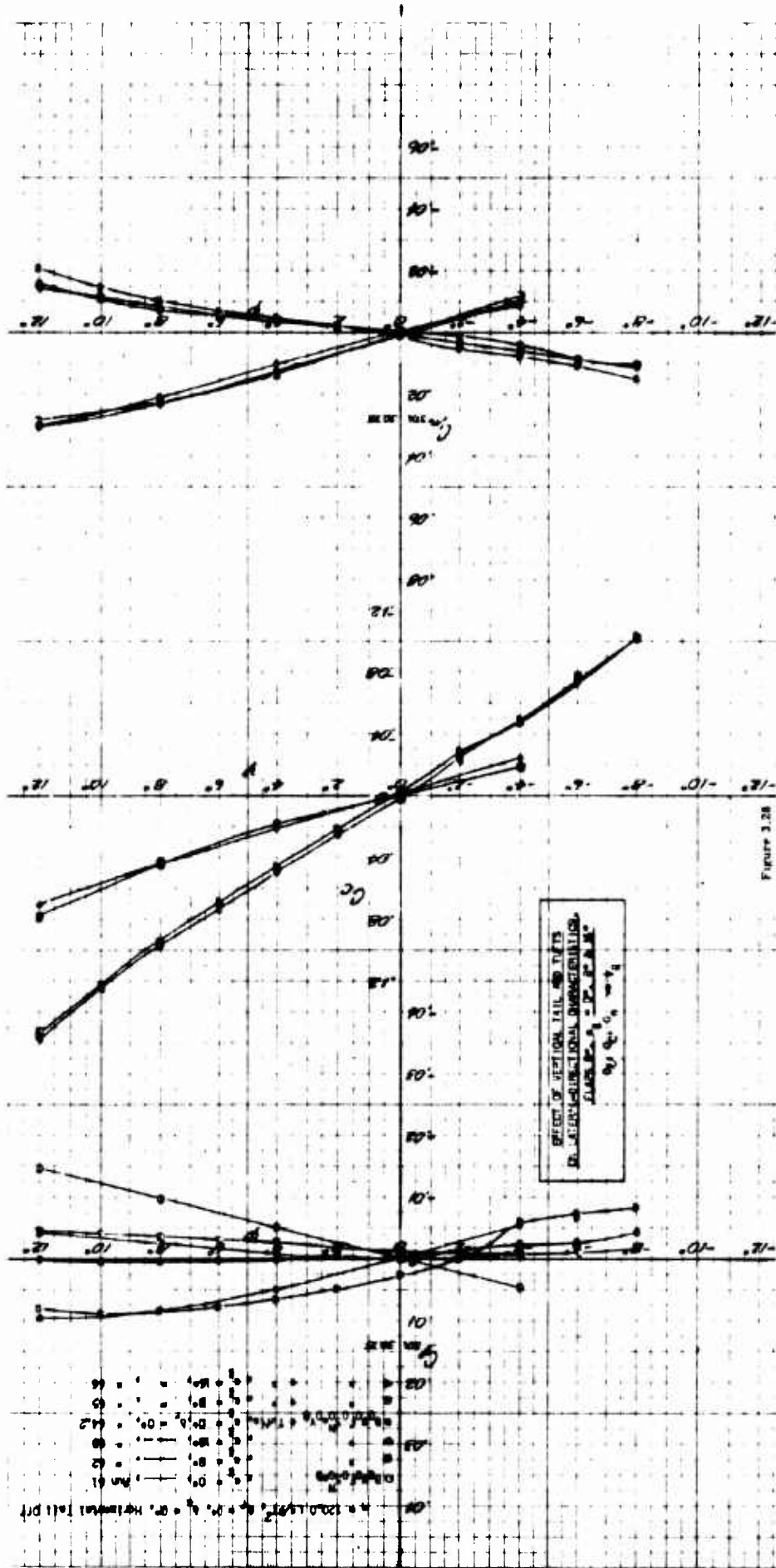
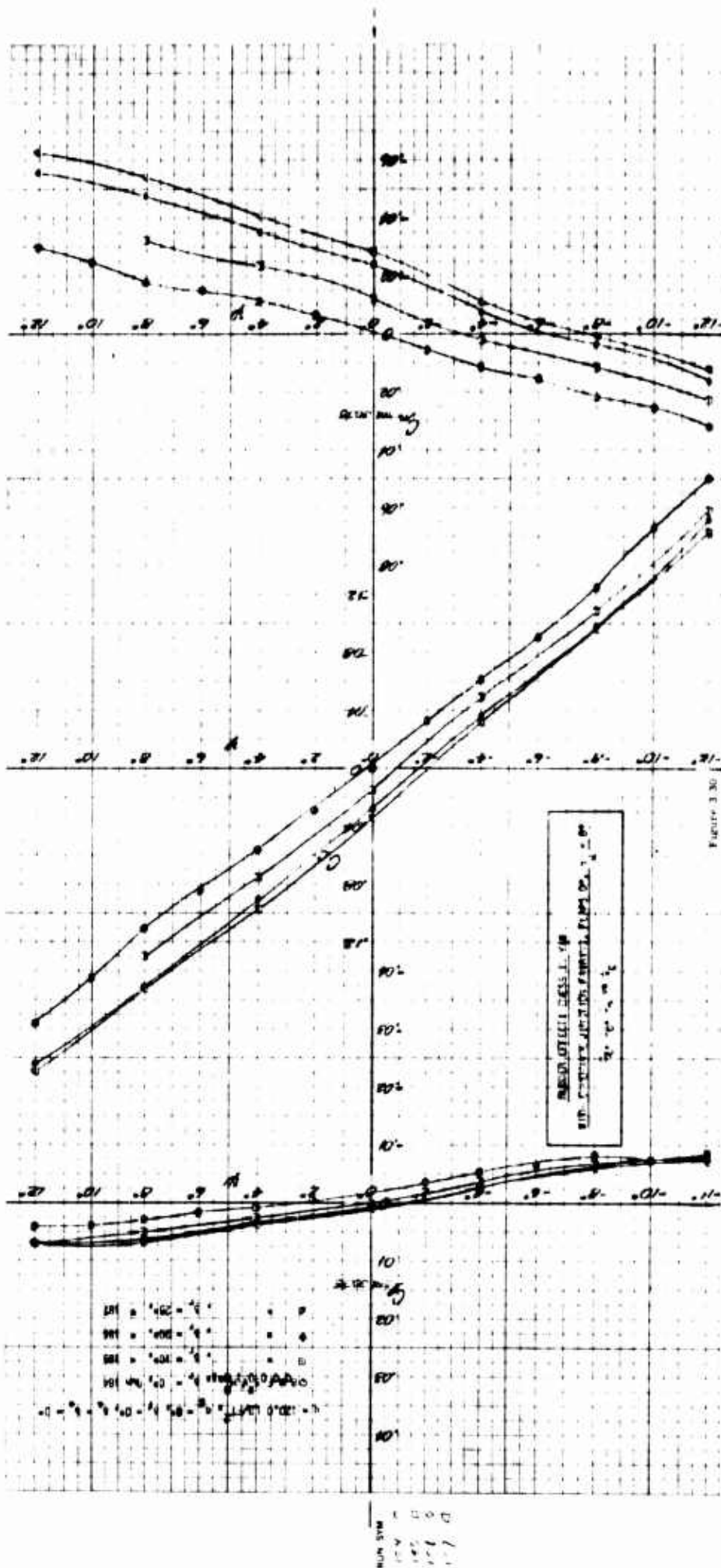
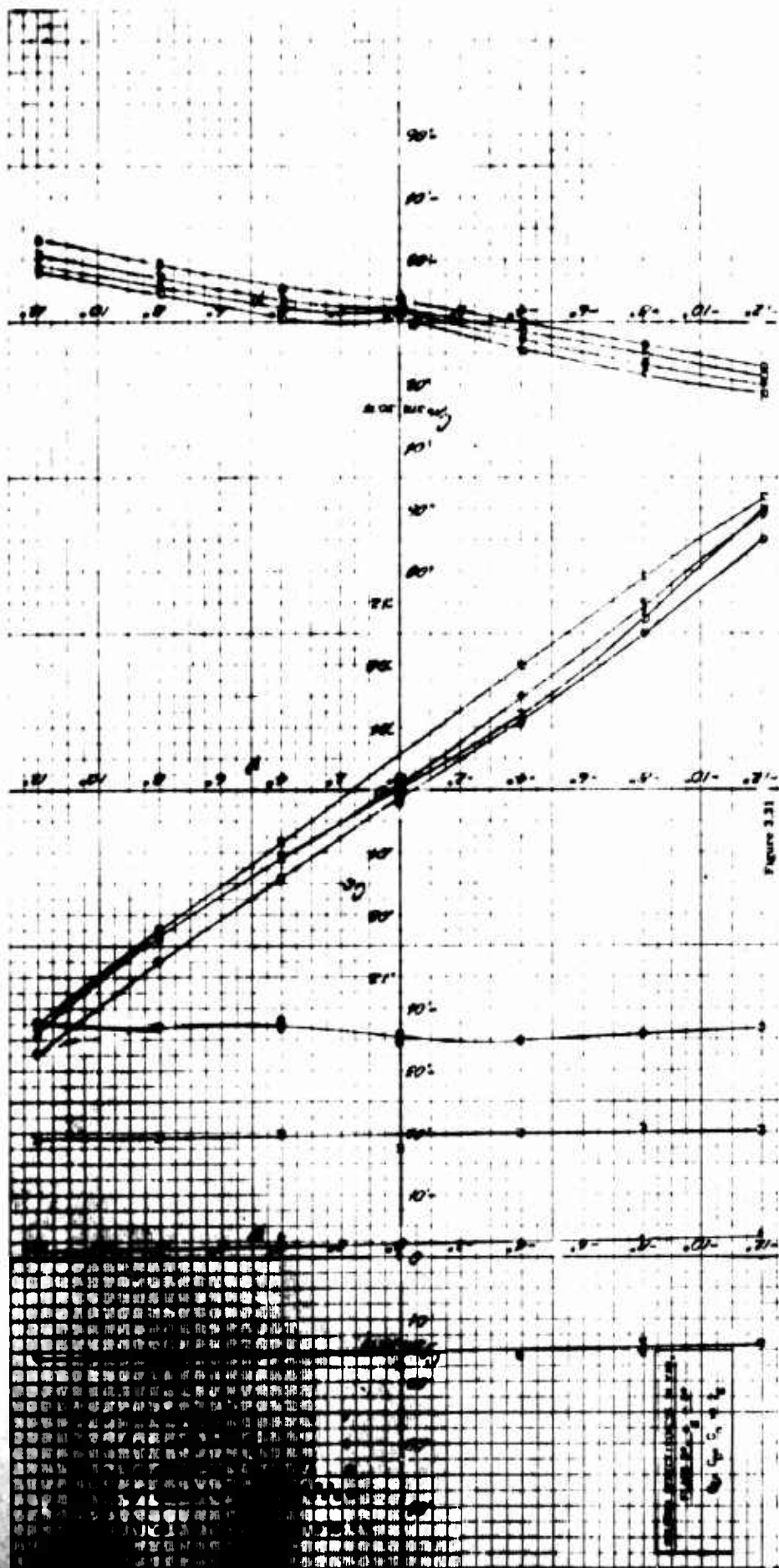


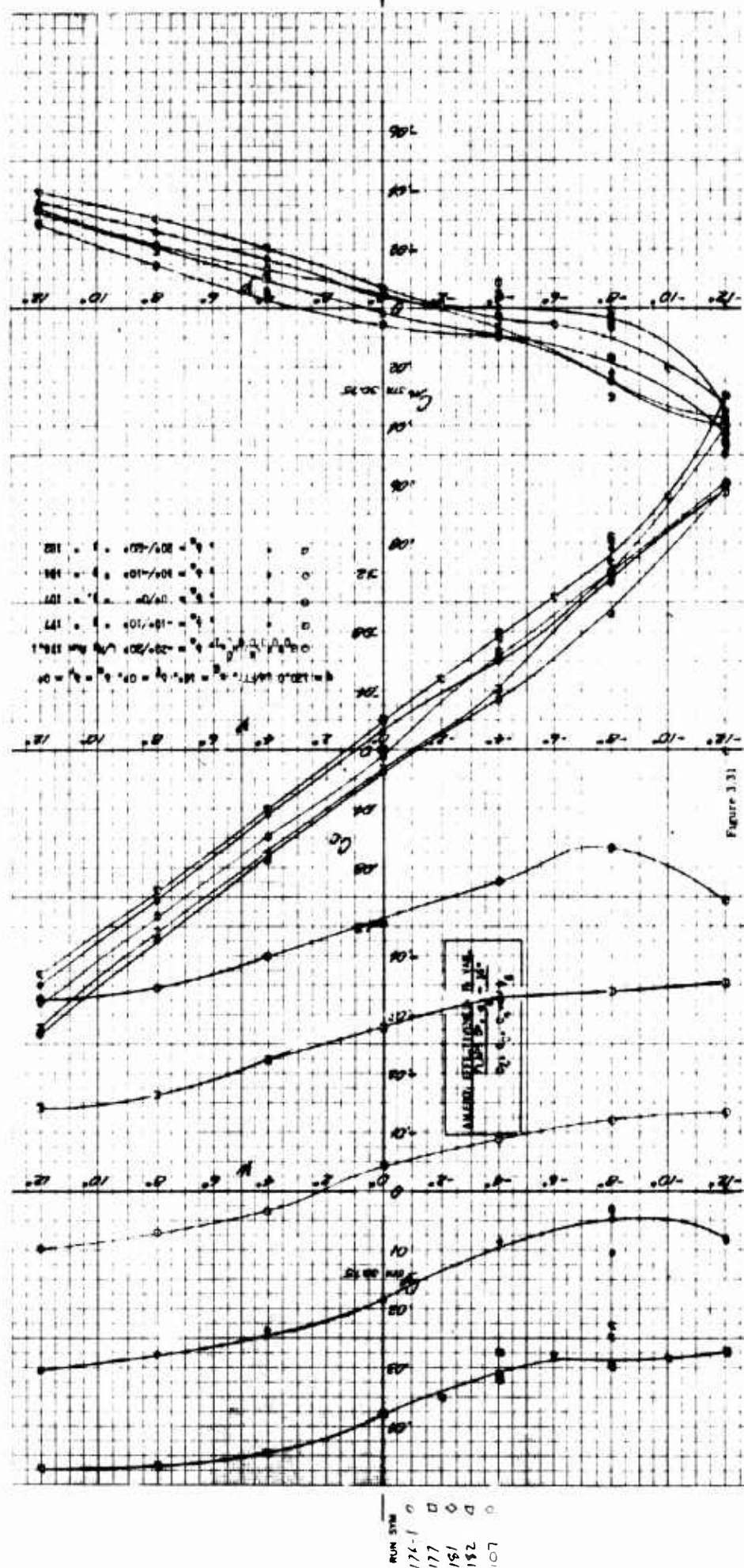
Figure 3.28

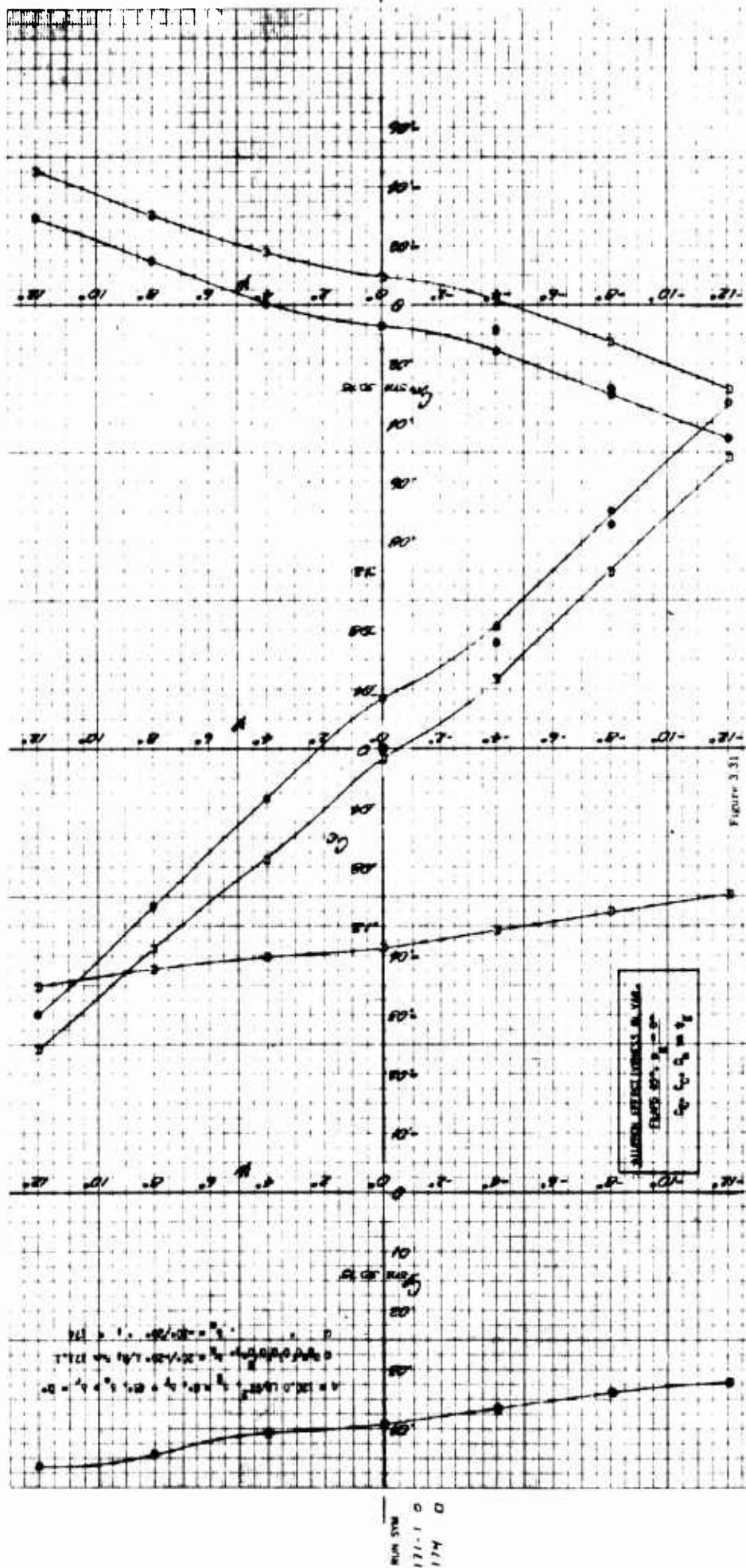
4 1/2
0 1/4
1 1/8
2 1/16
3 1/32
4 1/64
5 1/128
6 1/256
7 1/512
8 1/1024
9 1/2048
10 1/4096
11 1/8192
12 1/16384
13 1/32768
14 1/65536
15 1/131072
16 1/262144
17 1/524288
18 1/1048576
19 1/2097152





175 0 0 0
175 0 0 0
175 0 0 0
175 0 0 0





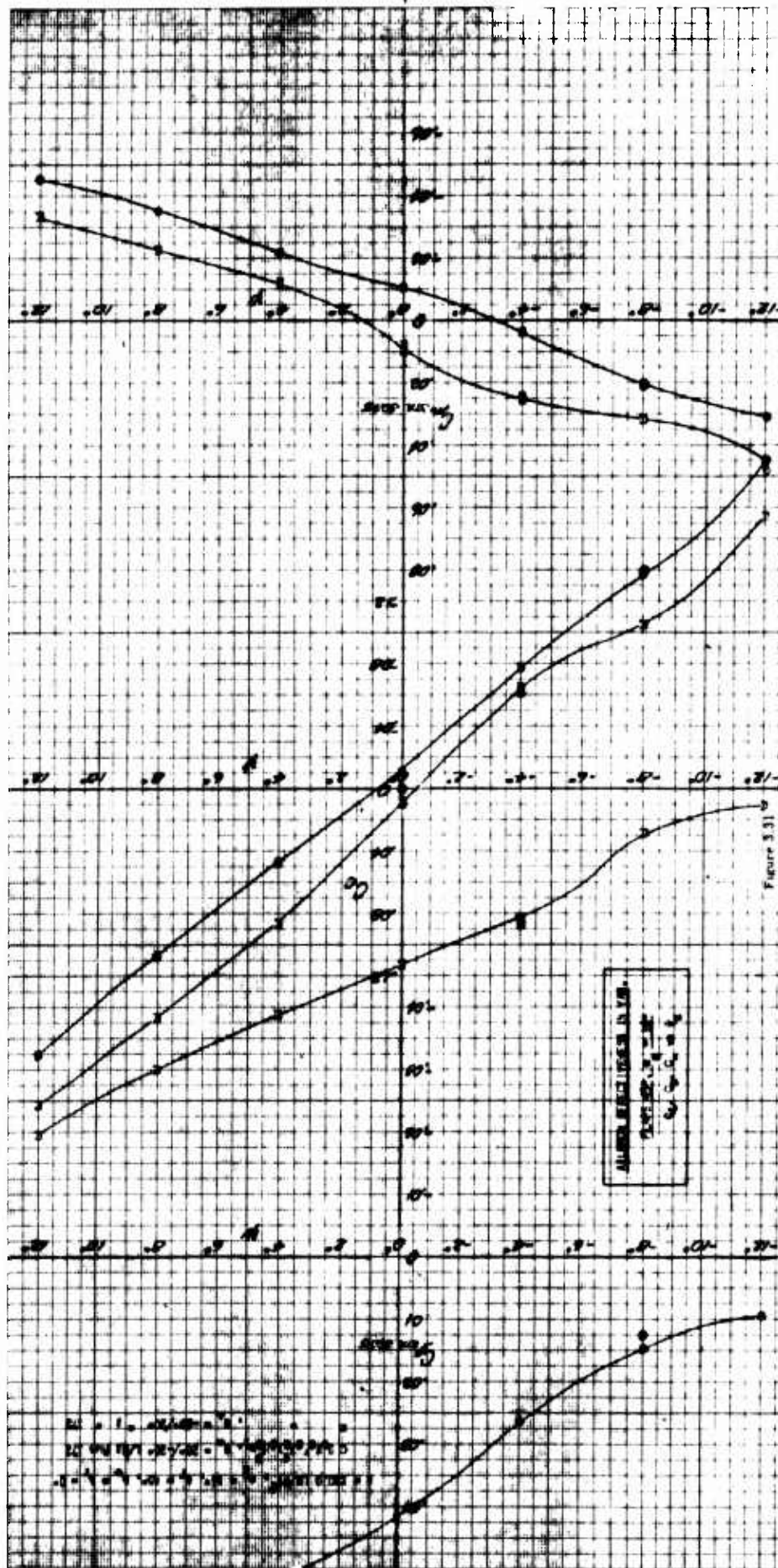
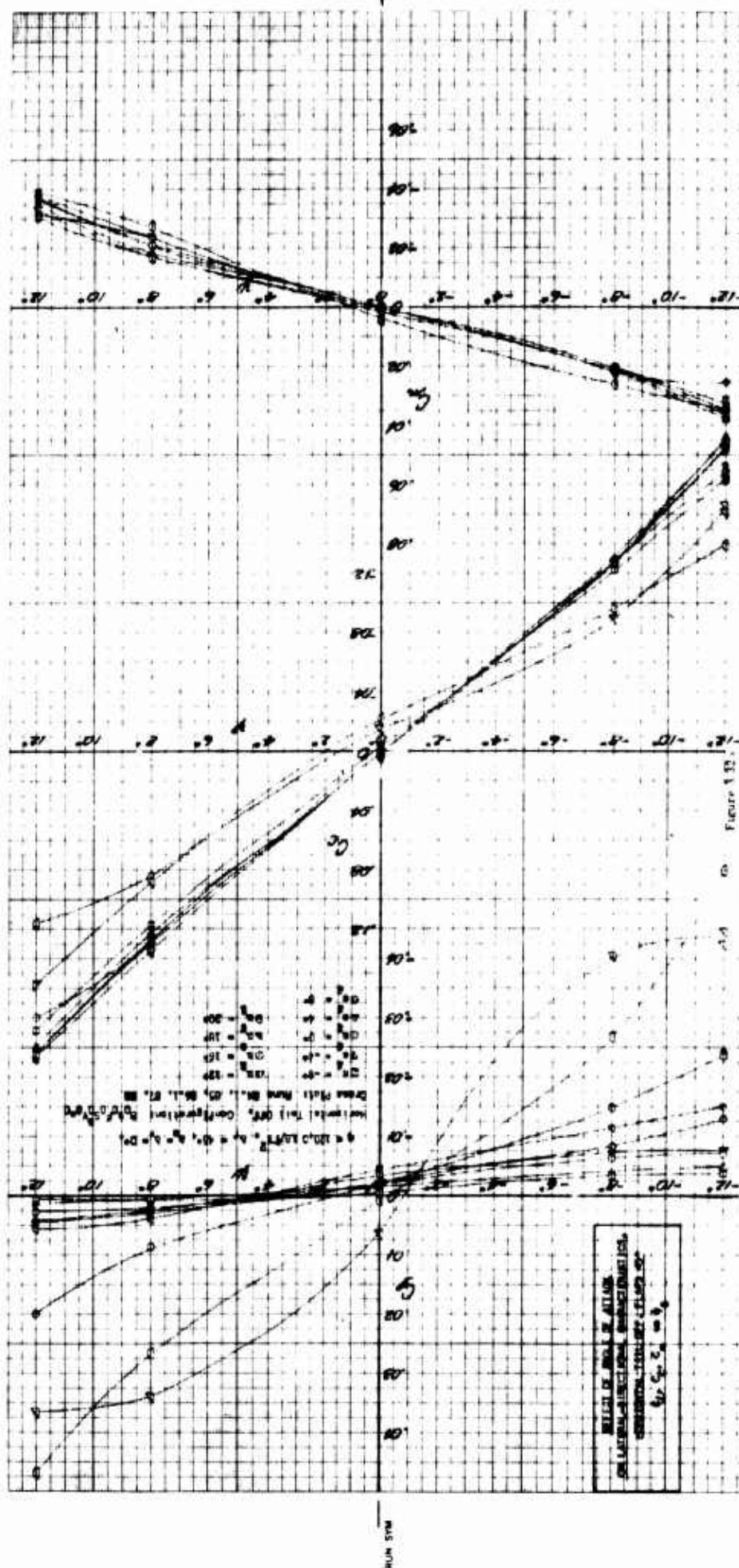


Figure 3.31

NUM. SYM.
 172
 173



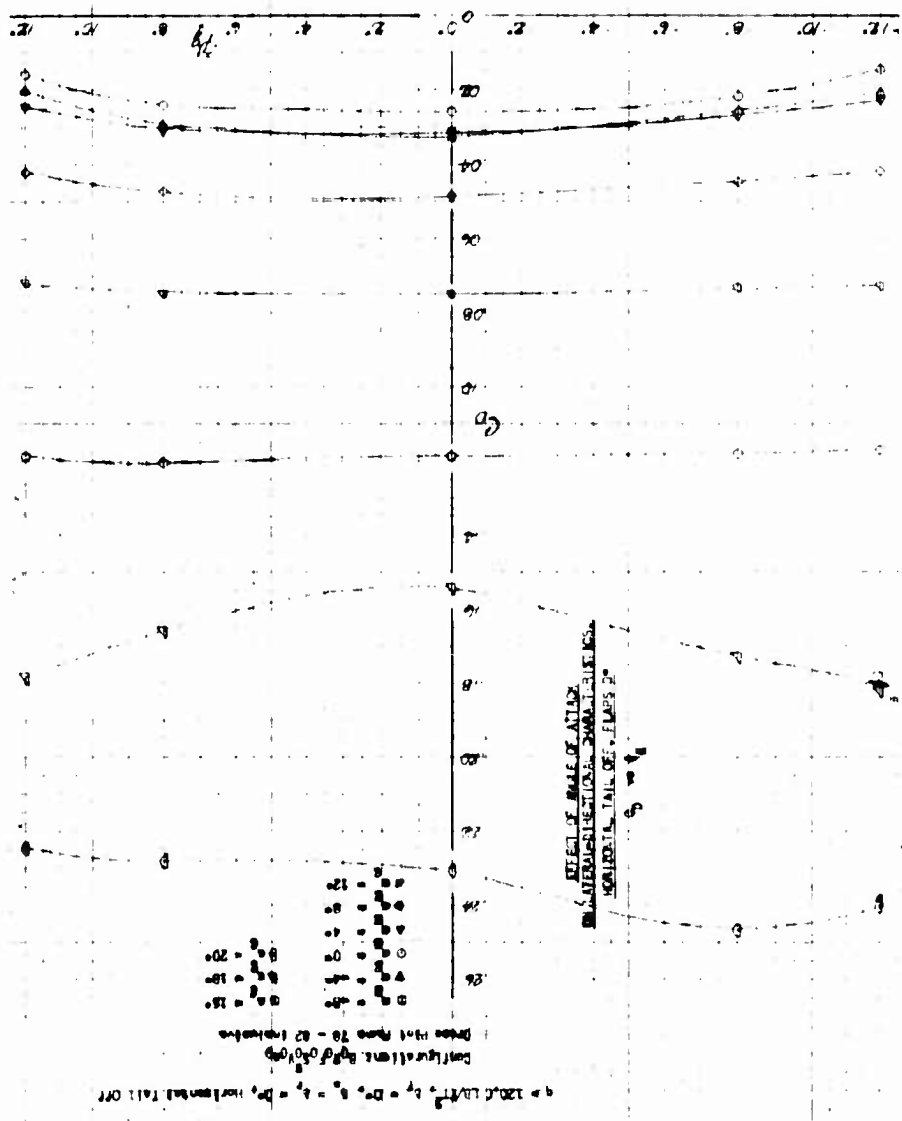


Figure 1.12

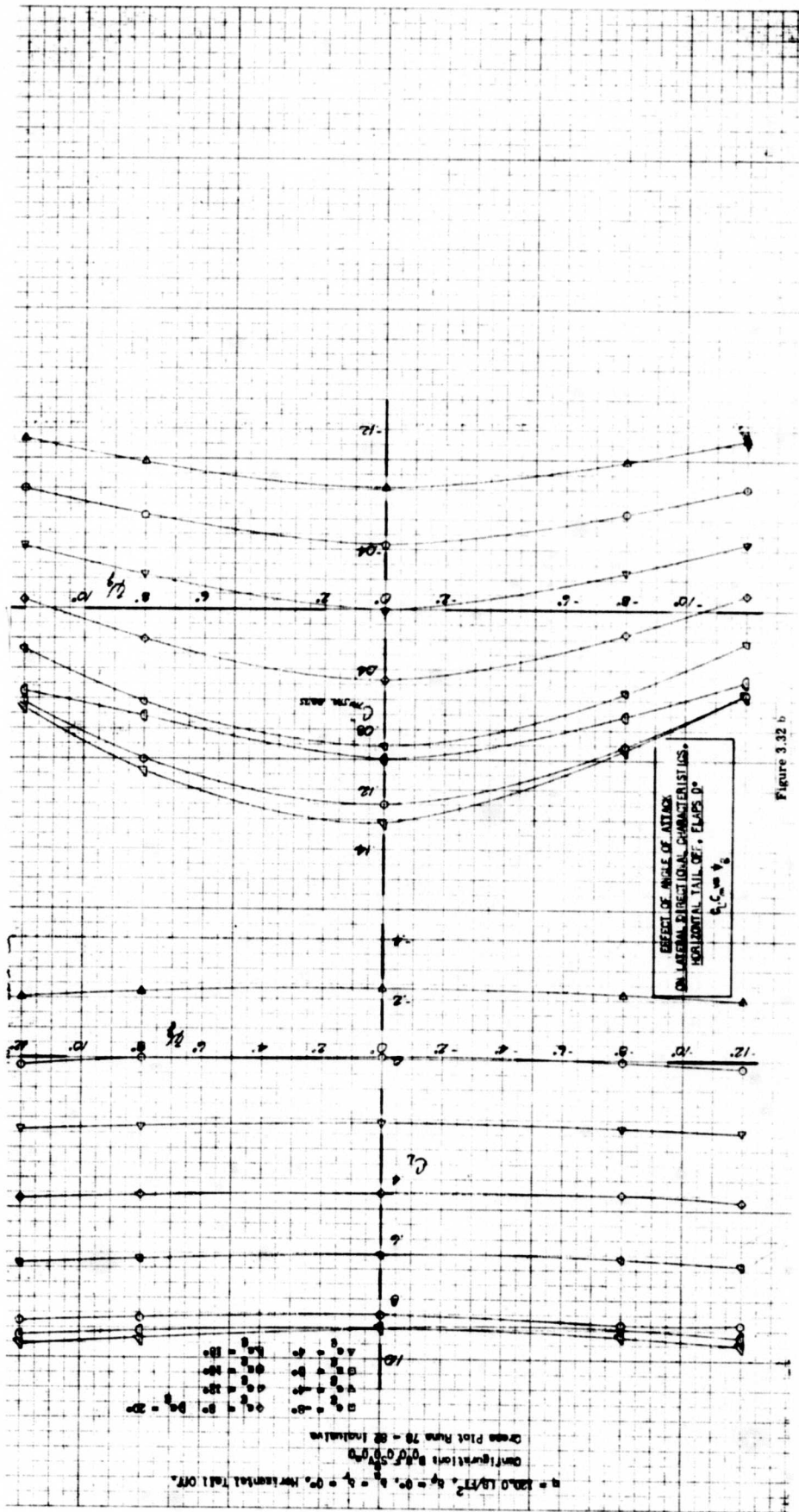


Figure 3.32 b

RUN SYM

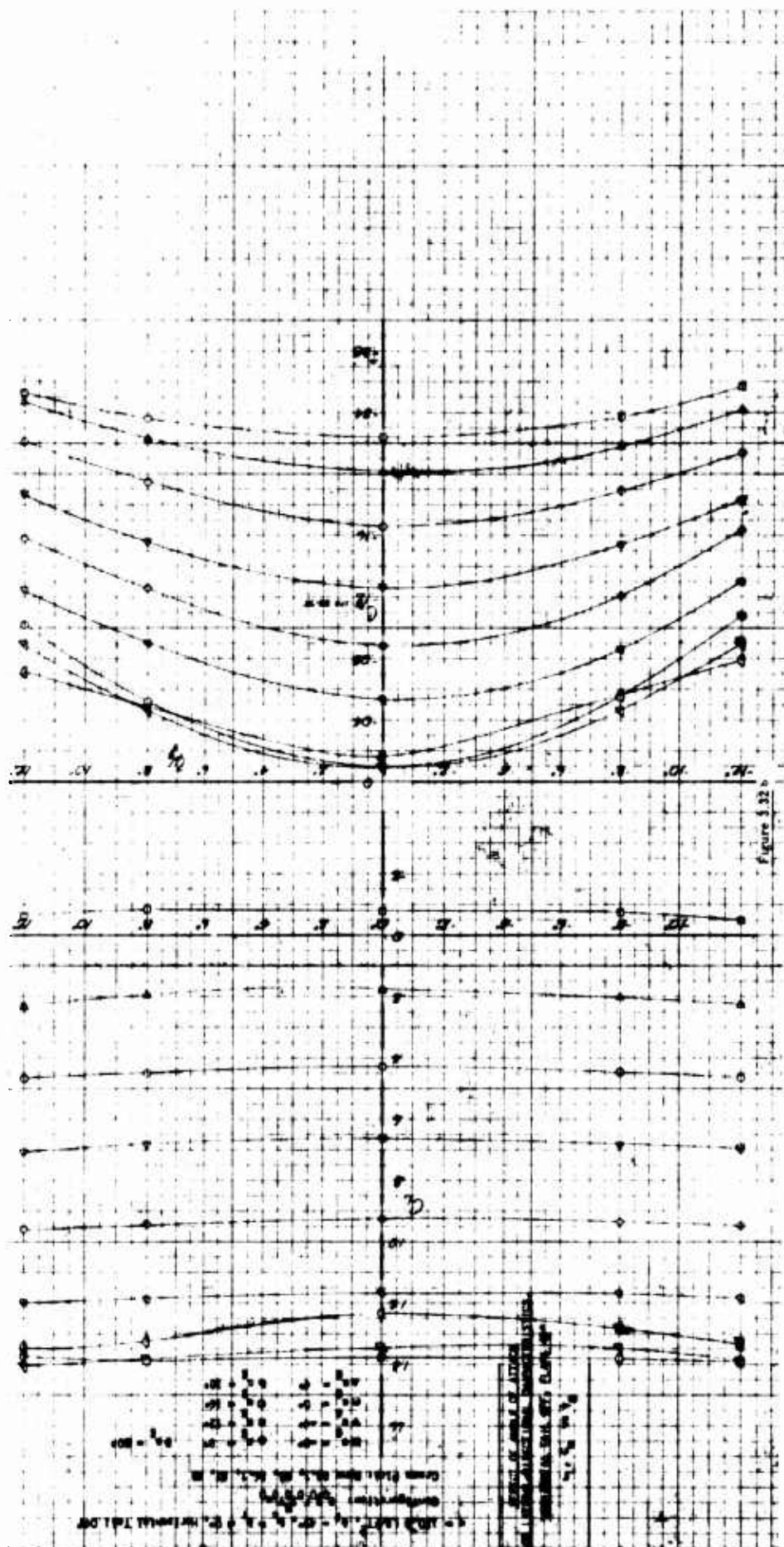


Figure 5.32

TABLE 3.2
PHASE I TEST

TABULATED FORCE AND MOMENT COEFFICIENTS

STABILITY AXES

Runs 1 to 3, inclusive, were made with the Image System installed for tare determination. These runs are not presented here as tabulated coefficients.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	FORCE AXES				STAB		TEST		DATE	
			MOMENT AXES				STAB		Run		q	
			C_D	C_L	C_m	ψ_x	ψ_y	ψ_z	C_{D_1}	C_{D_2}	C_L	C_{C_1}
4	5.01	8.13	.0357	.411	.049	.02-	.02-	.02-	.0008		.0012-	.000-
5	4.02	4.07	.0204	.171	.035	.02-	.02-	.02-	.0006		.0019-	.000-
6	.00-	.01-	.0188	.051-	.016	.02-	.02-	.02-	.0005		.0015-	.001-
7	4.01-	4.09-	.0251	.269-	.006-	.02-	.02-	.02-	.0007		.0011-	.002-
8	8.02-	8.18-	.0453	.521-	.027-	.01-	.01-	.01-	.0006		.0009-	.002-
9	12.00-	12.22-	.0745	.729-	.046-	.01-	.01-	.01-	.0002		.0005-	.001-
10	16.02-	16.31-	.1215	.944-	.052-	.01-	.01-	.01-	.0001-		.0001	.000-
12	18.00-	18.30-	.2010	.982-	.049-	.02-	.02-	.02-	.0007		.0014-	.005-
11	16.02-	16.31-	.1211	.940-	.062-	.01-	.01-	.01-	.0001-		.0008-	.001-
13	20.02-	20.31-	.2720	.933-	.035-	.02-	.02-	.02-	.0012		.0021	.005-
14	22.00-	22.25-	.3009	.819-	.003	.01-	.01-	.01-	.0050		.0010	.004-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											STAB	DATE	7/06/62			
MOMENT											STAB	TEST	343-0	RUN	5-0	120.
Pt	α_L	α	C_L	C_D	C_m	ψ_L	ψ	C_H	C_L	C_C						
2	8.02-	8.15-	.418-	.0354	.048-	.01-	.01-	.0001-	.0007-	.000						
3	4.02-	4.07-	.176-	.0202	.034-	.01-	.01-	.0002	.0007-	.000-						
5	.01-	.00-	.051	.0166	.015-	.01-	.01-	.0002	.0007-	.000						
7	4.00	4.08	.270	.0240	.007	.01-	.01-	.0002-	.0008-	.001						
9	8.01	8.17	.512	.0443	.028	.02-	.02-	.0003-	.0011-	.002						
10	12.00	12.23	.746	.0740	.046	.02-	.02-	.0001-	.0009-	.002						
11	16.02	16.30	.892	.1410	.054	.02-	.02-	.0022	.0036	.003-						
14	19.01	19.29	.917	.2251	.030	.02-	.02-	.0004-	.0022-	.003						
15	20.00	20.26	.840	.2813	.016-	.02-	.02-	.0023-	.0019	.000-						
16	22.02	22.26	.793	.3237	.030-	.02-	.02-	.0050-	.0004-	.007						
18	24.02	24.25	.749	.3496	.029-	.02-	.02-	.0053-	.000	.004						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	FORCE AXES			STAB			TEST			DATE		
	α_f	α	C_L	C_D	C_m	ψ_f	ψ	SUN	343-0	5-0	7/06/62	120.
2	.00-	.01	.052	.0173	.018-	4.02-	4.02-		.0005-	.0006	.002	
3	.00-	.01	.056	.0177	.018-	4.02-	4.02-		.0005-	.0006	.002	
4	.00-	.01	.045	.0165	.015-	.00	.00-		.0009-	.0004-	.003	
5	.00-	.01	.052	.0176	.017-	4.00	4.00		.0013-	.0019-	.003	
6	.00-	.01	.051	.0216	.022-	8.02	8.02		.0000-	.0019-	.002-	
7	.00-	.01	.057	.0233	.020-	12.03	12.03		.0001-	.0032-	.002-	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

P1	α_f	α	FORCE AXES				MOMENT AXES				TEST		DATE	7/06/62
			C_D	C_L	C_D	C_L	C_m	ψ_f	ψ	C_n	C_L	C_C		
2	8.01	8.17	.0457	.513	.023	.023	4.02-	4.02-	4.02-	.0006	.0038-	.001	8	120.
3	8.00	8.16	.0444	.511	.027	.027	.03	.03	.03	.0011-	.0009-	.004		
4	8.01	8.17	.0453	.510	.025	.025	4.01	4.01	4.01	.0022-	.0016	.003		
5	8.01	8.16	.0487	.506	.020	.020	8.01	8.01	8.01	.0010-	.0046	.001		
6	8.01	8.17	.0496	.512	.020	.020	8.01	8.01	8.01	.0010-	.0046	.001		
7	8.01	8.16	.0495	.491	.019	.019	12.01	12.01	12.01	.0018-	.0073	.003		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXES		STAB		TEST		DATE	
		MOMENT AXES		STAB		343-0		7/06/62	
Pt	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_L	C_c
3	16.01	16.29	.899	.1343	.059	4.02-	.0037	.0071-	.005-
4	16.01	16.29	.905	.1368	.061	.02-	.0009	.0005	.001
5	16.01	16.29	.912	.1396	.057	4.00	.0011-	.0074	.000
6	16.01	15.29	.906	.1469	.051	8.01	.0017-	.0133	.004-
7	16.01	16.29	.903	.1437	.052	11.99	.0018-	.0151	.001-
9	16.01	16.28	.887	.1449	.049	12.00	.0039-	.0182	.001-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											
		FORCE AREA		STAB				TEST 343-0		DATE 7/06/62	
		MOMENT AREA		STAB				SUM 9-0			
Pt	α_z	α	C_L	C_D	C_m	ψ_L	ψ	C_N	C_L	C_C	
2	8.00	8.00	.013	.0137	.053	.00	.00	.0004-	.0002	.004-	
3	4.02	4.02	.003	.0145	.031	.00	.00	.0000-	.0005	.007-	
4	.00	.00	.004-	.0139	.009	.00	.00	.0009-	.0004	.006-	
5	4.00-	4.00-	.007-	.0143	.017-	.00	.00	.0011-	.0002	.002-	
6	8.02-	8.02-	.017-	.0167	.041-	.00	.00	.0009-	.0004	.003-	
7	12.02-	12.02-	.025-	.0192	.061-	.00	.00	.0011-	.0006	.008-	
8	14.01-	14.02-	.034-	.0229	.063-	.00	.00	.0015-	.0006	.006-	
9	8.01	8.01	.012	.0129	.052	.00	.00	.0006-	.0005	.005-	

Runs 10 and 11 were made with the Image System installed for tare determination. These runs are not presented here as tabulated coefficients.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET									
FORCE AXES									
MOMENT AXES									
STAB									
STAB									
Pt	α_f	α	C_L	C_D	C_M	ψ_z	ψ	C_N	C_C
2	8.00	8.00	.013-	.0142	.051-	.00	.00-	.0017-	.0003
15	4.00	4.00	.003-	.0159	.032-	.01	.01	.0010-	.0006
17	4.00	4.00	.002-	.0155	.032-	.01	.01	.0011-	.0006
4	4.02	4.02	.002-	.0157	.103-	.00	.00-	.0011-	.0003
5	.01-	.01-	.003	.0152	.009-	.01	.01	.0011-	.0003
6	4.00	4.00	.008	.0154	.016	.01	.01	.0010-	.0001
7	8.00	8.00	.016	.0179	.039	.01	.01	.0011-	.0000
8	12.00	12.00	.025	.0197	.056	.01	.01	.0007-	.0000
9	16.00	16.01	.034	.0214	.072	.01	.01	.0011-	.0001-
10	18.01	18.02	.040	.0241	.082	.01	.01	.0005-	.0002
11	20.00	20.01	.045	.0272	.089	.01	.01	.0005-	.0001
12	22.00	22.01	.051	.0300	.095	.01	.01	.0006-	.0000
14	24.01	24.02	.055	.0323	.102	.01	.01	.0007-	.0002

TEST 343-0

DATE

12-0

120.

7/06/62

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													
			FORCE AXIS		STAB					TEST		DATE	
			MOMENT AXIS		STAB					NOSE		7/06/62	
PT	α_T	α	C_L	C_D	C_M	ψ_T	ψ	C_N	C_F	C_C			
3	.00-	.00-	.004	.0166	.010-	4.03-	4.03-	.0145-	.0000	.017-			
5	.02-	.02-	.002	.0149	.008-	.00-	.00-	.0012-	.0002	.001			
6	.00-	.00-	.003	.0165	.010-	4.01	4.01	.0129	.0003-	.016			
7	.01-	.01-	.005	.0167	.013-	8.00	8.00	.0247	.0005-	.038			
8	.01-	.01-	.008	.0186	.017-	12.03	12.03	.0332	.0014-	.075			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES										TEST	343-0	DATE	7/06/62
MOMENT AXES										RUN	14-0	1	120.
PT	α_i	α	C_L	C_D	C_M	ψ_i	ψ	C_H	C_F	C_C			
3	8.01	8.01	.019	.0196	.038	4.02-	4.02-	.0104-	.0002	.023-			
4	8.01	8.01	.017	.0166	.042	.01-	.01-	.0014-	.0002-	.000			
5	8.01	8.01	.017	.0193	.037	4.01	4.01	.0099	.0002-	.022			
6	8.01	8.01	.021	.0206	.032	8.00	8.00	.0195	.0001-	.050			
7	8.01	8.01	.027	.0215	.024	12.00	12.00	.0290	.0006-	.085			

REF	343-0	DATE	7/06/62
END	15-0		120.

REF	343-0	DATE	7/06/62
END	15-0		120.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											7/06/62
		FORCE AXES		STAB				TEST	343-0	DATE	
		MOMENT AXES		STAB				ROW	16-0		
Pt	α_L	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_L	C_c	
6	8.00	8.15	.486	.0515	.106	.03	.03	.0003	.0020	.009	
7	4.02	4.09	.243	.0299	.076	.03	.03	.0002	.0026	.011	
8	.03	.03	.024	.0246	.037	.03	.03	.0004	.0035	.010	
10	4.01	4.07	.206	.0316	.007	.03	.03	.0007	.0024	.008	
12	8.00	8.14	.447	.0453	.053	.03	.03	.0006	.0025	.009	
13	12.00	12.21	.672	.0716	.096	.03	.03	.0007	.0023	.010	
15	14.00	14.24	.778	.0931	.112	.03	.03	.0006	.0028	.013	
6	8.00	8.10	.344	.0509	.125	.03	.03	.0003	.0020	.008	
7	4.02	4.04	.087	.0296	.096	.03	.03	.0002	.0026	.011	
8	.03	.01	.132	.0246	.057	.03	.03	.0004	.0035	.010	
10	4.01	4.11	.348	.0319	.009	.03	.03	.0007	.0024	.008	
12	6.00	8.18	.573	.0459	.039	.03	.03	.0006	.0025	.009	
13	12.00	12.24	.786	.0724	.084	.03	.03	.0007	.0023	.010	
15	14.00	14.27	.688	.0940	.102	.03	.03	.0006	.0028	.013	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES										TEST	343-0	DATE	7/06/62
MOMENT AXES										STAB	17-0	1	120.
Pt	α_z	α	C_L	C_D	C_M	ψ_z	ψ	C_H	C_I	C_C			
4	3.02	8.07	.165	.0470	.191	.02	.02	.0005	.0024	.006			
5	4.00	3.98	.074	.0434	.169	.02	.02	.0003	.0031	.009			
6	.01	.09	.320	.0543	.135	.02	.02	.0002	.0039	.019			
7	4.00	4.13	.577	.0803	.098	.02	.02	.0007	.0034	.011			
13	8.00	8.26	.840	.1176	.054	.02	.02	.0009	.0032	.011			
11	12.01	12.35	1.086	.1717	.021	.02	.02	.0008	.0035	.012			
12	14.01	14.38	1.187	.2103	.005	.02	.02	.0007	.0018	.011			
4	8.02	8.03	.038	.0468	.212	.02	.02	.0005	.0024	.006			
5	4.00	3.93	.230	.0436	.190	.02	.02	.0003	.0031	.009			
6	.01	.14	.476	.0549	.155	.02	.02	.0002	.0039	.010			
7	4.00	4.22	.717	.0812	.113	.02	.02	.0007	.0034	.011			
13	8.00	8.30	.974	.1188	.069	.02	.02	.0009	.0032	.011			
11	12.01	12.39	1.214	.1831	.035	.02	.02	.0003	.0035	.012			
12	14.01	14.42	1.317	.2219	.009	.02	.02	.0007	.0018	.011			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
FORCE AXES				STAB		TEST	343-0		DATE	
MOMENT AXES				STAB		RUN	18-0		120.	
Pt	α_L	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_L	C_c
2	8.01	8.03	.073	.0637	.213	.02-	.02-	.0001	.0041-	.009-
4	4.02	3.97	.164	.0667	.192	.02-	.02-	.0005	.0042-	.012-
5	.02	.10-	.400-	.0770	.137	.02-	.02-	.0002	.0040-	.013-
6	4.01-	4.21-	.638-	.1042	.116	.02-	.02-	.0005-	.0039-	.013-
7	8.01-	8.30-	.921-	.1471	.073	.02-	.02-	.0008-	.0029-	.010-
8	12.01-	12.37-	1.144-	.1950	.042	.02-	.02-	.0010-	.0044-	.011-
11	12.00-	12.36-	1.154-	.2008	.045	.02-	.02-	.0010-	.0051-	.012-
12	14.00-	14.39-	1.256-	.2475	.030	.02-	.02-	.0029-	.0049-	.012-
2	8.01	7.99	.077-	.0637	.239	.02-	.02-	.0001	.0041-	.009-
4	4.02	3.92	.320-	.0671	.213	.02-	.02-	.0005	.0042-	.012-
5	.02	.15-	.542-	.0776	.175	.02-	.02-	.0002	.0040-	.013-
6	4.01-	4.25-	.770-	.1051	.131	.02-	.02-	.0005-	.0039-	.013-
7	8.01-	8.33-	1.021-	.1480	.084	.02-	.02-	.0003-	.0029-	.010-
8	12.01-	12.39-	1.234-	.1968	.051	.02-	.02-	.0010-	.0044-	.011-
11	12.00-	12.39-	1.244-	.2018	.054	.02-	.02-	.0010-	.0051-	.012-
12	14.00-	14.42-	1.346-	.2486	.038	.02-	.02-	.0029-	.0049-	.012-

Runs 19 to 24, inclusive, were made with the Image System installed for tare determination. These runs are not presented here as tabulated coefficients.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	FORCE AXES				MOMENT AXES				STAB		TEST	DATE	7/06/62
			C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C	STAB		343-0	1	120.
2	8.02	8.04	.066	.0635	.221	.04	.04	.0022	.0019	.004			25-0		
3	4.02	3.97	.173	.0649	.193	.04	.04	.0013	.0021	.003					
4	.00	.12	.409	.0781	.157	.03	.03	.0003	.0021	.001					
5	4.01	4.21	.644	.1026	.115	.04	.04	.0007	.0021	.002					
7	8.02	8.31	.926	.1465	.078	.04	.04	.0005	.0029	.003					
8	12.00	12.36	1.154	.2027	.042	.03	.03	.0004	.0036	.004					
9	16.02	16.45	1.374	.3036	.011	.04	.04	.0007	.0011	.002					
10	20.01	20.40	1.263	.4594	.035	.04	.04	.0040	.0115	.009					
12	18.01	18.44	1.385	.3976	.018	.04	.04	.0029	.0160	.017					
13	22.02	22.41	1.238	.5035	.067	.04	.04	.0092	.0104	.013					
14	24.01	24.38	1.175	.5455	.066	.03	.03	.0140	.0206	.025					

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											
FORCE AXES											
MOMENT AXES											
STAB											
STAB											
Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_l	C_c	DATE
3	8.00-	8.05-	.182-	.0466	.191-	.03-	.03-	.0017-	.0002-	.001-	7/06/62
4	4.01-	3.99-	.064	.0426	.171-	.03-	.03-	.0013-	.0008-	.001	
5	.01-	.09	.325	.0541	.137-	.03-	.03-	.0005-	.0017-	.001	
6	4.01	4.19	.577	.0788	.098-	.03-	.03-	.0003-	.0017-	.001	
7	8.01	8.27	.830	.1175	.060-	.03-	.03-	.0005-	.0014-	.001	
8	12.01	12.35	1.090	.1714	.024-	.03-	.03-	.0009-	.0028-	.002	
9	16.00	16.39	1.259	.2466	.022	.03-	.03-	.0003-	.0029	.007-	
10	20.01	20.37	1.174	.3915	.010-	.03-	.03-	.0074-	.0032-	.004-	
11	18.01	18.40	1.267	.3095	.025	.04-	.04-	.0010	.0021	.024-	
12	22.01	22.36	1.117	.4330	.043-	.04-	.04-	.0105-	.0092	.015-	
13	24.01	24.35	1.079	.4711	.046-	.04-	.04-	.0105-	.0169	.021-	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PORT AIRS STAB 343-0 7/06/62
 AIRS STAB 27-0 120.

Pt	α_1	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_I	C_C
2	8.03-	8.18-	.486-	.0520	.105-	.04-	.04-	.0015-	.0002	.001-
3	4.02-	4.09-	.248-	.0300	.075-	.04-	.04-	.0011-	.0001	.001-
4	.01-	.01-	.021-	.0235	.036-	.03-	.03-	.0011-	.0002-	.000-
5	4.00	4.06	.201	.0295	.006	.03-	.03-	.0014-	.0006-	.001
7	8.01	8.14	.440	.0454	.051	.03-	.03-	.0014-	.0007-	.001
8	12.01	12.22	.670	.0721	.096	.03-	.03-	.0010-	.0011-	.001
9	16.00	16.27	.861	.1196	.137	.03-	.03-	.0007-	.0029	.006-
10	18.02	18.30	.920	.1738	.137	.03-	.03-	.0003	.0040	.009-
11	20.03	20.31	.899	.2414	.092	.03-	.03-	.0061-	.0131	.020-
12	22.01	22.27	.839	.2935	.050	.03-	.03-	.0007-	.0119	.020-
15	24.00	24.25	.811	.3336	.045	.04-	.04-	.0015-	.0117	.017-
18	18.01	18.29	.908	.1726	.137	.04-	.04-	.0009	.0037	.011-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												
FORCE AXES												
MOMENT AXES												
Pt	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_I	C_C	TEST	DATE
MOMENT AXES												
Pt	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_I	C_C	TEST	DATE
2	.01-	.01-	.010-	.0259	.039-	4.02-	4.02-	.0121-	.0032	.019-	28-0	120.
3	.01-	.01-	.017-	.0242	.038-	.02-	.02-	.0012-	.0002-	.001	28-0	120.
4	.01-	.01-	.016-	.0261	.041-	4.00	4.00	.0114	.0055-	.018	28-0	120.
5	.01-	.01-	.013-	.0256	.044-	8.01	6.01	.0232	.0101-	.040	28-0	120.
6	.01-	.01-	.006-	.0248	.047-	12.00	12.00	.0313	.0146-	.074	28-0	120.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

MODEL AIDS STAB
MOMENT AIDS STAB

TEST 343-9
RUN 29-9

DATE 7/05/52
123.

Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_f	C_c
3	8.01	8.15	.445	.0479	.046	4.01-	4.01-	.0127-	.0020-	.016-
5	8.00	8.14	.446	.0457	.051	.00-	.00-	.0012-	.0009-	.032
6	8.01	8.15	.446	.0465	.046	4.00	4.00	.0125	.0013-	.019
7	8.00	8.14	.445	.0474	.036	8.00	6.00	.0242	.0020-	.041
8	8.00	8.14	.457	.0494	.025	12.03	12.03	.0316	.0038-	.075

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												
			FORCE AXES			STAB			REF 343-0			DATE 7/06/62
			MOMENT AXES			STAB			REF 30-0			DATE 120.
Pt	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_A	C_C		
3	16.03	16.30	.872	.1167	.127	4.01-	4.01-	.0093-	.0074-	.021-		
4	15.02	16.23	.856	.1210	.134	.01	.01	.0004-	.0037	.004-		
5	16.03	16.29	.857	.1280	.128	4.00	4.03	.0107	.0090	.015		
6	16.03	16.30	.865	.1377	.111	8.01	8.01	.0231	.0117	.034		
7	16.03	16.30	.870	.1440	.087	12.03	12.03	.0329	.0125	.062		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXES		MOMENT AXES		STAB		TEST		DATE	
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_H	C_I		
3	4.02-	4.09-	.241-	.0300	.076-	.00	.00-	.0011-	.0000		7/06/62
4	.01-	.01-	.018-	.0231	.039-	.00	.00-	.0009-	.0003		120.
5	4.00	4.06	.205	.0285	.003	.00	.00-	.0015-	.0001		
6	8.00	8.14	.447	.0450	.050	.00	.00-	.0012-	.0006-		
7	16.00	16.27	.856	.1215	.135	.00	.00	.0002-	.0005		
9	20.02	20.23	.879	.2553	.084	.00	.00	.0061-	.0065		
10	16.01	16.27	.856	.1243	.136	.00	.00	.0007-	.0001		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXIS		STAB		TUN		RUN		7/06/62	
MOMENT AXIS		STAB		TUN		RUN		120°	
Pt	α_f	α	C_L	C_D	C_M	ψ_L	ψ	C_L	C_D
3	4.01-	4.03-	.246-	.0302	.075-	.00	.00-	.0000-	.001
4	.01	.01	.018-	.0234	.037-	.00	.00-	.0003-	.001
5	4.01	4.07	.205	.0295	.006	.00	.00-	.0007-	.001
6	8.01	8.14	.442	.0456	.051	.00	.00-	.0002-	.001
7	16.01	16.28	.870	.1190	.136	.00	.00-	.0036-	.004
8	20.02	20.29	.888	.2517	.100	.00	.00	.0008	.017-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_f	α	FORCE AXES				MOMENT AXES				TEST RUN	343-0	33-0	DATE	7/06/62
			C_L	C_D	C_M	ψ_L	ψ	C_N	C_I	C_C					
2	4.02-	4.09-	.246-	.0302	.075-	.00	.00-	.0011-	.0020	.001					
3	.02-	.02-	.019-	.0235	.037-	.00	.00	.0010-	.0003-	.000-					
4	4.00	4.06	.197	.0291	.005	.00	.00-	.0014-	.0007-	.002					
5	8.01	8.14	.441	.0454	.050	.00	.00-	.0012-	.0009-	.002					
6	16.01	16.27	.852	.1295	.135	.00	.00	.0001	.0018	.002-					
7	20.02	20.29	.878	.2584	.089	.00	.00	.0071-	.0021	.013-					

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													
Pt	FOOT ARES												
	α_t	α	C_L	C_D	MOCKET ARES				STAB				
					C_m	ψ_t	ψ	C_n	C_l	C_c			
3	4.02-	4.09-	.252-	.0306	.077-	.01	.01	.0012-	.0006	.001			
4	.02-	.02-	.021-	.0243	.038-	.01	.01	.0013-	.0004-	.001			
5	4.01	4.07	.207	.0293	.005	.01	.01	.0012-	.0005-	.001			
6	8.00	6.14	.446	.0456	.051	.01	.01	.0015-	.0009-	.002			
7	16.00	16.26	.856	.1247	.135	.00	.00	.0007-	.0007-	.001-			
9	20.02	20.30	.897	.2538	.091	.01	.01	.0060-	.0005	.024-			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PI	α_L	α	FORCE AXES				MOMENT AXES				TEST	DATE	7/06/62
			C_L	C_D	C_m	ψ_L	ψ	C_n	C_f	C_c			
2	4.02	4.03	.245	.0312	.076	.01	.01	.0010	.0004	.001			
3	.02	.02	.020	.0246	.038	.01	.01	.0010	.0002	.001			
5	4.00	4.06	.201	.0293	.006	.00	.00	.0009	.0006	.001			
6	8.01	8.15	.447	.0464	.052	.01	.01	.0012	.0011	.002			
7	16.01	16.27	.843	.1284	.134	.01	.01	.0001	.0017	.003			
11	20.02	20.29	.978	.2603	.090	.01	.01	.0023	.0032	.009			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET									
			FORCE AXES		STAB				
			-MOMENT AXES-		STAB				
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	FOR 343-0	DATE 7/06/62
								FOR 36-0	120°
3	4.02-	4.09-	.247-	.0312	.077-	.01	.01	.0011-	.000
4	.02-	.02-	.022-	.0245	.038-	.01	.01	.0010-	.000
5	4.02	4.08	.200	.0301	.006	.01	.01	.0013-	.002
6	8.00	8.13	.437	.0458	.052	.01	.01	.0011-	.003
7	16.00	16.26	.844	.1266	.134	.01	.01	.0001	.002-
10	20.01	20.27	.837	.2525	.092	.00	.00	.0035-	.010-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET														FORCE AXES	STAB	MOMENT AXES	STAB	TEST	343-0	37-0	DATE	7/06/62
P1	α_f	α	C_L	C_D	C_m	ψ_f	ψ	C_n	C_L	C_C												
3	4.02-	4.09-	.236-	.0307	.076-	.01	.01	.0011-	.0017-	.000-												
4	.00-	.00	.023-	.0242	.038-	.01	.01	.0012-	.0013-	.001-												
5	4.00	4.06	.207	.0294	.007	.01	.01	.0011-	.0010-	.001												
6	8.00	8.13	.441	.0455	.051	.01	.01	.0011-	.0013-	.002												
7	16.01	16.27	.851	.1216	.134	.01	.01	.0002	.0030	.006-												
8	20.03	20.30	.866	.2519	.087	.00	.00-	.0079-	.0108-	.002												
9	.02-	.02-	.014-	.0242	.036-	.01	.01	.0006-	.0010-	.001-												

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	FORCE AXES				STAB		MOMENT AXES				STAB		TEST		DATE	
			C_L	C_D	C_m	ψ_1	ψ		C_n	C_L	C_C		C_n	C_L	C_C			
2	4.02-	4.03-	.053-	.0325	.127-	.01	.01		.0012-	.0022-	.000		.0012-	.0022-	.000			7/06/62
3	.00	.05	.127	.0374	.097-	.01	.01		.0011-	.0002	.001-		.0011-	.0002	.001-			120.
4	4.00	4.13	.435	.0541	.056-	.01	.01		.0003-	.0012-	.001		.0003-	.0012-	.001			
5	8.00	8.21	.691	.0846	.016-	.01	.01		.0009-	.0010-	.001		.0009-	.0010-	.001			
6	12.00	12.29	.939	.1263	.021	.01	.01		.0005-	.0021-	.002		.0005-	.0021-	.002			
7	16.01	16.36	1.124	.1941	.063	.01	.01		.0000-	.0043	.008-		.0000-	.0043	.008-			
10	18.00	18.35	1.134	.2536	.065	.00	.00		.0027	.0105	.016-		.0027	.0105	.016-			
11	20.00	20.33	1.064	.3398	.019	.01	.01		.0072-	.0027-	.005-		.0072-	.0027-	.005-			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
			FORCE AXES		STAB		TEST		DATE	
			MOMENT AXES		STAB		343-0		7/06/62	
Pt	α_L	α	C_L	C_D	C_m	ψ_f	ψ	C_H	C_f	C_c
12	4.00-	3.96-	.145	.0586	.186-	.00	.00-	.0011-	.0012-	.001
13	.02-	.10	.383	.0710	.150-	.00	.00-	.0001-	.0016-	.001
14	4.01	4.20	.017	.0971	.111-	.00	.00-	.0002-	.0017-	.001
15	8.01	8.28	.873	.1377	.072-	.00	.00-	.0001-	.0035-	.002
16	12.00	12.35	1.125	.1916	.038-	.00	.00-	.0004	.0040-	.004
17	16.01	16.43	1.349	.2891	.005-	.00	.00	.0003	.0018	.006-
19	18.01	18.43	1.328	.3576	.007-	.00	.00	.0009-	.0208	.029-
20	20.02	20.40	1.237	.4362	.047-	.00	.00	.0041-	.0035-	.022-

7/06/62

1

39-0

343-0

STAB

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STAB

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STAB

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												FORCE AXES	STAB	TEST	343-0	DATE	7/06/62
												MOMENT AXES	STAB		40-1		
Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_L	C_C							
2	4.02-	3.97-	.185	.0705	.198-	.00	.00-	.0013-	.0004-	.000							
3	.02-	.11	.426	.0843	.159-	.00	.00-	.0006-	.0013-	.001							
4	4.02	4.22	.662	.1103	.118-	.00	.00-	.0003-	.0013-	.000							
5	8.00	8.29	.933	.1550	.083-	.00	.00-	.0003-	.0029-	.002							
6	12.00	12.37	1.179	.2157	.049-	.00	.00-	.0000-	.0036-	.003							
7	16.00	16.43	1.391	.3105	.014-	.00	.00-	.0013	.0031-	.000							
8	18.00	18.44	1.399	.4234	.025-	.00	.00	.0002	.0042-	.002-							
9	20.04	20.44	1.277	.4751	.046-	.00	.00	.0011	.0003	.022-							

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	FORCE AXES				MOMENT AXES				STAB		TEST RUN	DATE	7/05/62
			C_D	C_L	C_m	ψ_s	ψ	C_n	C_l	C_c	STAB	STAB			
2	4.03-	4.10-	.0316	.252-	.075-	.00	.00-	.0013-	.0008-	.001			343-0	4	120.
3	.00-	.00	.0243	.020-	.036-	.00	.00-	.0011-	.0006-	.000			41-0		
4	4.02	4.08	.0293	.195	.007	.00	.00-	.0014-	.0006-	.001					
5	8.00	8.13	.0458	.439	.052	.00	.00-	.0011-	.0009-	.002					
6	12.01	12.22	.0725	.667	.096	.00	.00-	.0005-	.0011-	.001					
7	16.01	16.23	.1187	.879	.136	.00	.00	.0005-	.0003	.002-					
8	18.00	18.29	.1748	.927	.138	.00	.00	.0007	.0044	.012-					
9	20.01	20.28	.2524	.885	.101	.00	.00-	.0062-	.0101-	.005					

Runs 42 to 44, inclusive, no force and moment data
were recorded.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET														FORCE AREA		STAB		MOMENT AREA		STAB		TEST 343-0		DATE 7/06/62	
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_f	C_c															
2	4.00-	4.07-	.252-	.0327	.078-	.01-	.01-	.0000-	.0002-	.000															
4	.00-	.00	.021-	.0201	.042-	.01-	.01-	.0002	.0011-	.000															
5	4.03	4.09	.204	.0322	.000-	.01-	.01-	.0000-	.0010-	.001															
7	9.00	8.13	.442	.0475	.042	.01-	.01-	.0004-	.0007-	.000															
9	16.02	16.26	.852	.1246	.121	.01-	.01-	.0002	.0039	.006-															
10	18.02	18.30	.908	.1767	.123	.01-	.01-	.0010	.0043	.008-															
11	20.02	20.28	.849	.2576	.070	.01-	.01-	.0089-	.0010-	.004															

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXIS		STAB		MOMENT AXIS		STAB		TEST	DATE
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_l	C_c	
2	4.03-	4.10-	.251-	.0311	.076-	.02-	.02-	.0003-	.0017	.000-	7/06/62
4	.00-	.00	.022-	.0242	.040-	.01-	.01-	.0001-	.0009-	.000-	
5	4.00	4.06	.205	.0296	.004	.01-	.01-	.0002-	.0011-	.001	
6	8.02	8.16	.445	.0459	.047	.01-	.01-	.0002-	.0010-	.001	
7	16.00	16.27	.862	.1277	.128	.01-	.01-	.0002	.0045	.006-	
8	10.01	18.29	.908	.1778	.127	.01-	.01-	.0006	.0043	.010-	
9	20.01	20.27	.854	.2553	.077	.01-	.01-	.0035-	.0003-	.014-	

FORCE AREA	STAB	TEST	343-9	DATE	7/06/62
MOMENT AREA	STAB	SEN	47-0	Q	120.

FORCE AREA	STAB	TEST	343-9	DATE	7/06/62
MOMENT AREA	STAB	SEN	47-0	Q	120.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES STAB STAB
 MOMENT AXES STAB STAB
 TEST 343-0
 DATE 7/06/62
 RUN 48-0
 Q 120.

Pt	α_f	α	C_L	C_D	C_m	ψ_f	ψ	C_{L_f}	C_{D_f}	C_{m_f}	C_{L_c}	C_{D_c}
97	4.02-	4.09-	.242-	.0302	.076-	.02-	.02-	.0005-	.0005-	.0005-	.0005-	.002
48	4.01	4.07	.210	.0293	.005	.02-	.02-	.0000-	.0000-	.0000-	.0000-	.003
50	.00-	.00	.016-	.0232	.037-	.02-	.02-	.0003-	.0003-	.0003-	.0003-	.001
3	4.02	4.00	.209	.0287	.006	.01-	.01-	.0005-	.0005-	.0005-	.0005-	.000-
4	4.02	4.08	.206	.0287	.006	.01-	.01-	.0008-	.0008-	.0008-	.0008-	.002
55	5.02	8.13	.443	.0450	.050	.02-	.02-	.0013-	.0013-	.0013-	.0013-	.002
4	16.00	16.27	.860	.1210	.132	.01-	.01-	.0003-	.0003-	.0003-	.0003-	.000-
5	18.00	19.28	.909	.1751	.131	.01-	.01-	.0013	.0013	.0013	.0042	.009-
54	20.02	20.29	.890	.2574	.043	.01-	.01-	.0044-	.0044-	.0044-	.0000-	.013-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AREA STAB DATE 7/06/62

TEST 343-0

POWELL AREA STAB

120°

49-0

STAB

PI	α_L	α	C_L	C_D	C_m	ψ_L	ψ	C_N	C_f	C_C
3	.01	.01	.011-	.0249	.040-	4.02-	4.02-	.0110-	.0040	.021-
53	.01	.01	.016-	.0234	.039-	.01-	.01-	.0004-	.0003-	.001
2	.01	.01	.015-	.0242	.039-	4.02	4.02	.0120	.0057-	.017
51	.01	.01	.017-	.0245	.045-	8.01	8.01	.0225	.0105-	.041
1	.01	.01	.005-	.0239	.049-	12.01	12.01	.0320	.0151-	.074
2	.02	.02	.004	.0243	.053-	16.00	16.00	.0390	.0205-	.113
53	.02	.02	.010	.0220	.059-	20.02	20.02	.0446	.0259-	.164

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXIS STAB
 MOMENT AXIS STAB
 REF 343-0
 REV 50-C
 DATE 7/06/62
 120.

M	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C
3	8.01	8.14	.444	.0470	.031	10.01-	10.01-	.0248-	.0006	.060-
4	8.01	8.14	.443	.0472	.035	8.02-	8.02-	.0235-	.0000-	.040-
5	8.01	8.15	.449	.0468	.041	6.01-	6.01-	.0186-	.0005	.028-
6	8.01	8.15	.447	.0450	.045	4.02-	4.02-	.0131-	.0001	.019-
7	8.01	8.14	.443	.0450	.043	2.01-	2.01-	.0071-	.0004	.009-
8	8.00	8.14	.450	.0455	.051	.00-	.00	.0009-	.0001	.001-
9	8.01	8.14	.442	.0443	.050	2.00	2.00	.0060	.0004-	.009
10	8.01	8.15	.452	.0462	.047	4.00	4.00	.0130	.0011-	.016
11	8.01	8.15	.443	.0470	.041	6.01	6.01	.0155	.0015-	.029
12	8.01	8.15	.452	.0473	.036	8.02	8.02	.0240	.0019-	.040
13	8.00	8.14	.450	.0481	.031	10.00	10.00	.0276	.0028-	.056
14	8.01	8.15	.459	.0481	.025	12.01	12.01	.0306	.0041-	.076
15	8.01	8.15	.457	.0470	.017	16.01	16.01	.0274	.0062-	.119
16	8.01	8.14	.442	.0435	.011	20.03	20.03	.0395	.0092-	.171

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	FORCE AXES				MOMENT AXES				STAB		TEST		DATE	
			C_L	C_D	C_m	ψ_L	ψ	C_n	C_l	C_c	C_L	C_C	C_n	C_l	C_C	C_C
4	16.02	16.33	.990	.1394	.118	10.02	10.02	.0227	.0100	.074						120.
5	16.02	16.29	.873	.1180	.115	8.01	8.01	.0193	.0093	.046						
6	16.02	16.30	.893	.1193	.125	6.01	6.01	.0153	.0082	.034						
7	16.02	16.29	.877	.1139	.130	4.02	4.02	.0097	.0066	.021						
19	16.02	16.28	.856	.1209	.128	4.04	4.04	.0088	.0035	.025						
18	16.02	16.28	.854	.1213	.130	3.02	3.02	.0055	.0018	.019						
9	16.02	16.29	.847	.1256	.130	2.01	2.01	.0050	.0015	.016						
20	16.02	16.28	.847	.1269	.131	.00	.00	.0001	.0045	.006						
10	16.02	16.28	.848	.1255	.132	.01	.01	.0002	.0048	.005						
11	16.02	16.28	.853	.1272	.130	2.01	2.01	.0056	.0078	.004						
12	16.02	16.29	.854	.1306	.127	4.03	4.03	.0109	.0100	.014						
13	16.02	16.29	.857	.1353	.120	6.00	6.00	.0162	.0111	.023						
14	16.02	16.29	.861	.1368	.109	8.01	8.01	.0219	.0119	.035						
15	16.02	16.29	.866	.1427	.099	10.00	10.00	.0266	.0122	.048						
16	16.02	16.29	.868	.1491	.085	12.01	12.01	.0313	.0125	.059						
17	16.02	16.28	.845	.1513	.066	16.03	16.03	.0367	.0115	.092						
					.055	20.00	20.00	.0403	.0121	.143						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													PORTS AXIS		STAB		TEST 343-0		DATE		7/25/62	
													CURRENT AXIS		STAB		RUN 52-0					
Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_f	C_c												
2	8.01-	8.15-	.476-	.0570	.106-	.01-	.01-	.0078-	.0006	.008												
4	4.02-	4.00-	.240-	.0306	.076-	.01-	.01-	.0001-	.0001	.001												
5	2.02-	2.05-	.123-	.0263	.058-	.02-	.02-	.0002	.0005-	.001												
6	.00-	.00	.012-	.0241	.039-	.01-	.01-	.0003-	.0002-	.001												
8	4.02	4.08	.208	.0297	.006	.01-	.01-	.0004-	.0004-	.001												
9	8.02	8.16	.449	.0403	.051	.01-	.01-	.0004-	.0002-	.002												
11	12.01	12.22	.679	.0726	.096	.01-	.01-	.0001-	.0005-	.001												
12	16.02	16.28	.856	.1257	.131	.01-	.01-	.0003	.0046	.003-												
13	12.02	12.30	.904	.1761	.132	.01-	.01-	.0006	.0043	.003-												
14	20.02	20.29	.858	.2578	.038	.01-	.01-	.0144-	.0016	.011												

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

P1	α_f	α	FORCE AXES				STAB		ITEM		DATE
			MOMENT AXES				STAB	STAB	RUN	Q	
			C_L	C_D	C_m	ψ_t	ψ		C_n	C_L	C_c
4	8.02-	8.16-	.463-	.0504	.109-	.01-	.01-		.0002-	.0001	.000
6	4.02-	4.09-	.226-	.0299	.077-	.01-	.01-		.0001	.0004-	.000
7	.01-	.01-	.002-	.0239	.041-	.01-	.01-		.0003	.0008-	.001-
8	4.01	4.07	.218	.0297	.004	.01-	.01-		.0002	.0006-	.001
9	8.00	8.14	.449	.0463	.048	.01-	.01-		.0000	.0007-	.001
10	12.00	12.21	.668	.0721	.092	.01-	.01-		.0001	.0011-	.001
11	16.01	16.27	.854	.1253	.129	.01-	.01-		.0004	.0032	.001-
12	18.01	18.29	.916	.1731	.133	.01-	.01-		.0012	.0037	.009-
13	20.03	20.29	.854	.2525	.089	.01-	.01-		.0133-	.0010	.000

7/06/62

120.0

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET																PORT ALES	STAB	TEST	363-0	DATE	7/26/62
																PORT ALES	STAB	DATE	54-0		
P1	α_1	α	C_L	C_D	C_m	ψ_L	ψ	C_H	C_L	C_C											
23	8.01-	9.15-	.462-	.0310	.107-	.01-	.01-	.0006-	.0003	.000-											
25	4.02-	4.04-	.232-	.0314	.078-	.01-	.01-	.0000	.0004	.000-											
27	.01	.01	.004-	.0255	.042-	.01-	.01-	.0000	.0001	.000-											
29	4.01	4.07	.214	.0310	.003	.01-	.01-	.0001-	.0001	.000-											
31	8.03	8.17	.450	.0477	.049	.01-	.01-	.0005-	.0002-	.000-											
35	12.01	12.21	.666	.0739	.092	.01-	.01-	.0001-	.0006-	.000											
37	16.01	16.23	.873	.1211	.131	.01-	.01-	.0007-	.0006-	.000-											
39	18.01	18.23	.913	.1573	.140	.01-	.01-	.0001	.0012-	.000-											
41	20.01	20.29	.900	.2465	.096	.01-	.01-	.0157-	.0054-	.011											

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AREA		STAB		MOMENT AREA		STAB		NOT	DATE
										343-0	7/06/62
Pt	α_t	α	C_L	C_D	C_m	ψ_L	ψ	C_H	C_I		120.
3	.01	.10	.309	.0515	.131-	4.02-	4.02-	.0033-	.0037		
4	.01	.10	.304	.0520	.126-	.00-	.00	.0004	.0001-		
5	.01	.10	.315	.0518	.130-	4.02	4.02	.0105	.0047-		
6	.01	.10	.315	.0517	.139-	8.02	8.02	.0200	.0092-		
7	.01	.11	.324	.0525	.140-	12.00	12.00	.0278	.0131-		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	PORT ALES				STAB				NEW				DATE			
	α_L	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_L	C_D	C_m	ψ	C_n	C_L	C_D	C_m
2	8.02	8.27	.807	.1132	.060	4.02	4.02	.0097	.0018	.0097	.0018	4.02	.0097	.0018	.0097	.0018
3	8.02	8.27	.907	.1114	.093	.00	.00	.0003	.0020	.0003	.0020	.00	.0003	.0020	.0003	.0020
4	8.02	8.27	.807	.1121	.059	4.00	4.00	.0112	.0020	.0112	.0020	4.00	.0112	.0020	.0112	.0020
5	8.02	8.27	.807	.1124	.070	8.02	8.02	.0207	.0030	.0207	.0030	8.02	.0207	.0030	.0207	.0030
7	8.02	3.27	.917	.1144	.082	12.01	12.01	.0272	.0040	.0272	.0040	12.01	.0272	.0040	.0272	.0040

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													
		FORCE AXES		STAB				MOMENT AXES		STAB		TEST	
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_z	C_c	TEST	RUN	DATE
2	16.03	16.42	1.255	.2375	.023	4.01-	4.01-	.0033-	.0059-	.029-			7/05/62
3	16.03	16.42	1.254	.2368	.029	.02-	.02-	.0003-	.0014-	.000-			
4	16.03	16.42	1.244	.2353	.025	4.02	4.02	.0022	.0038	.025			
5	16.03	16.42	1.230	.2407	.010	8.00	8.00	.0157	.0032	.055			
6	16.03	16.42	1.258	.2645	.024-	12.01	12.01	.0230	.0148	.075			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET																			FORCE AXES		STAB		MOMENT AXES		STAB		PLT 343-0		AIR 7/05/62	
Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_f	C_c																				
3	.03-	.10	.436	.0815	.165-	4.02-	4.02-	.0037-	.0010	.024-																				
4	.03-	.10	.429	.0811	.162-	.03-	.03-	.0004-	.0010-	.003																				
5	.03-	.10	.437	.0823	.168-	4.02	4.02	.0091	.0053-	.029																				
6	.03-	.11	.445	.0819	.177-	8.02	8.02	.0172	.0079-	.059																				
7	.03-	.11	.456	.0840	.191-	12.00	12.00	.0236	.0112-	.170																				

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AREA STAB
 MOMENT AREA STAB
 TEST 343-0
 RUN 59-0
 DATE 7/06/62
 120.

Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_L	C_D
5	8.01	8.30	.933	.1354	.093-	4.02-	4.02-	.0090-	.0035-	.024-
6	8.01	8.30	.935	.1545	.087-	.02-	.02-	.0000	.0029-	.004
9	8.01	8.30	.935	.1549	.094-	4.00	4.00	.0097	.0015-	.029
10	8.01	8.30	.939	.1563	.104-	8.00	8.00	.0122	.0014-	.060
12	9.01	8.30	.939	.1550	.113-	12.01	12.01	.0240	.0013-	.096

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													
PT	α_i	α	C_L	C_D	FORCE AXES			ψ	TEST			DATE	7/06/52
					C_m	ψ_z	ψ		C_n	C_f	C_c		
MOMENT AXES			RUN										
2	16.01	16.44	1.382	.3018	.016-	4.01-	4.01-	.0073-	.0069-	.022-			
3	16.01	16.44	1.358	.2993	.009-	.00-	.00-	.0006-	.0023-	.001			
4	16.01	16.44	1.361	.2955	.013-	4.00	4.00	.0075	.0045	.028			
5	16.01	16.44	1.334	.3046	.030-	6.01	8.01	.0171	.0102	.054			
7	16.01	16.43	1.349	.3313	.060-	12.02	12.02	.0307	.0250	.063			

LOW SPEED WIND TUNNEL FINAL DATA SHEET

P1	α_L	α	FORCE AXES				STAB		STAB		REV	343-0	REV	61-0	Q	DATE	8/17/62
			C_D	C_L	C_M	ψ_L	ψ	C_N	C_L	C_C							
2	.00-	.00	.0255	.004-	.042-	4.02-	4.02-	.0100-	.0047	.019-							
3	.00-	.00	.0235	.006-	.039-	.01-	.01-	.0001	.0001-	.002							
4	.00-	.00	.0239	.006-	.039-	.01-	.01-	.0002	.0001-	.002							
5	.00-	.00	.0255	.009-	.042-	4.01	4.01	.0126	.0051-	.018							
6	.00-	.00	.0251	.003	.045-	8.00	8.00	.0227	.0097-	.042							
7	.00-	.00	.0260	.006	.050-	12.00	12.00	.0299	.0148-	.076							

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXIS		STAB		REF		DATE	
		MODELING AXIS		STAB		62-0		1	
Pt	α	C_L	C_D	C_M	ψ	C_N	C_L	C_C	
2	8.00	8.14	.452	.0483	.043	4.03-	4.03-	.0115-	.018-
3	8.01	8.15	.452	.0465	.048	.02-	.02-	.0003-	.002
6	8.02	8.16	.453	.0476	.045	4.02	4.02	.0133	.019
7	8.02	8.16	.454	.0506	.034	8.01	8.01	.0217	.043
8	8.02	8.16	.458	.0511	.023	12.02	12.02	.0284	.077

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

P1	α_i	α	FORCE AREA			STAB		TEST	DATE	
			C_D	C_L	C_0	MOMENT AREA	STAB	NUM		
						C_M	ψ_i	ψ	C_n	C_i
2	16.02	16.29	.1243	.871	.1243	.128	4.01-	4.01-	.0085-	.0054-
3	16.02	16.29	.1223	.865	.1223	.133	.00-	.00-	.0001	.0003-
4	16.02	16.28	.1199	.856	.1199	.128	4.02	4.02	.0102	.0051
5	16.02	16.29	.1256	.862	.1256	.114	8.02	8.02	.0211	.0084
6	16.02	16.29	.1325	.870	.1325	.090	12.01	12.01	.0301	.0096
										C_c
										.023-
										.000
										.020
										.042
										.067

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													MODEL DATA		STAB		REV	DATE	BY	7/25/62
PT	α_1	α	C_L	C_D	MODEL DATA		STAB		ψ_1	ψ	REV		C_p	C_f	C_c	170.				
					C_m	ψ_2	C_m	ψ_2			04-2									
22	.00-	.00	.001-	.0217	.060-	8.02-	8.02-	.0112	.0019-	.102-										
23	.00-	.00	.007-	.0237	.053-	6.02-	6.02-	.0089	.0000-	.077-										
24	.00-	.00	.006-	.0257	.047-	4.01-	4.01-	.0023	.0007-	.009-										
26	.00-	.00	.007-	.0268	.046-	2.00-	2.00-	.0014	.0007-	.007-										
27	.00-	.00	.013-	.0265	.044-	.01-	.01-	.0003-	.0012-	.000-										
29	.00-	.00	.022-	.0266	.047-	2.00	2.00	.0017-	.0017-	.023										
30	.00-	.00	.013-	.0270	.050-	4.01	4.01	.0035-	.0027-	.047										
31	.00-	.00	.011-	.0266	.053-	6.01	6.01	.0079-	.0030-	.000										
32	.00-	.00	.005-	.0230	.064-	8.02	8.02	.0022-	.0035-	.004										
34	.00-	.00	.008	.0206	.072-	10.02	10.02	.0114-	.0041-	.104										
35	.00-	.00	.013	.0192	.052-	12.01	12.01	.0146-	.0020-	.102										

LOW-SPEED WIND TUNNEL FINAL DATA SHEET									
MODEL DATA		STAB		WIND 343-0		DATE		7/06/62	
EXPERIMENT DATA		STAB		WIND 66-0		DATE		120°	
α	α_i	C_L	C_D	C_M	ψ_i	ψ	C_n	C_f	C_c
2	15.01	16.25	.1477	.022	6.02	6.02	.0133	.0032	.103
3	16.02	16.27	.1180	.105	6.01	6.01	.0109	.0072	.075
13	16.02	16.27	.1220	.133	6.02	6.02	.0107	.0065	.073
4	15.02	16.27	.1179	.118	4.02	4.02	.0077	.0050	.047
16	16.02	16.27	.1277	.116	4.01	4.01	.0073	.0060	.049
5	16.02	16.26	.1250	.127	2.02	2.02	.0052	.0001	.029
17	16.02	16.28	.1302	.124	2.01	2.01	.0043	.0003	.027
6	15.01	16.27	.1276	.123	.02	.02	.0011	.0027	.003
7	15.02	16.25	.1271	.125	2.02	2.00	.0022	.0049	.021
8	16.02	16.23	.1281	.118	4.01	4.01	.0045	.0056	.013
9	15.02	16.26	.1206	.107	6.01	6.01	.0063	.0070	.063
10	15.02	16.28	.1306	.090	6.02	6.02	.0104	.0054	.094
12	16.02	16.24	.1337	.069	10.00	10.00	.0145	.0087	.123
14	16.02	16.29	.1371	.047	12.01	12.01	.0208	.0074	.154

LOW SPEED WIND TUNNEL FINAL DATA SHEET

PI	α_1	α	FORCE AXIS				STAB				TEST 343-0				DATE 7/06/62			
			PORTER AXIS				STAB				000 05-0				0			
			C_L	C_D	C_m	ψ_e	ψ	C_n	C_l	C_c								
2	3.01	3.15	.432	.0447	.017	6.02-	2.02-	.0114	.0041-	.101-								
3	3.01	3.15	.443	.0470	.027	6.01-	6.01-	.0050	.0025-	.075-								
4	3.02	3.16	.448	.0491	.035	4.01-	4.01-	.0042	.0023-	.042-								
5	3.01	4.14	.444	.0493	.041	2.02-	2.02-	.0031	.0011-	.020-								
7	3.01	3.13	.447	.0455	.045	.00-	.00-	.0004	.0007-	.000-								
9	3.01	3.13	.451	.0439	.044	2.00	2.00	.0012-	.0003-	.025								
10	3.01	3.15	.447	.0491	.037	4.02	4.02	.0045-	.0001	.042								
11	3.01	3.16	.448	.0481	.026	6.02	6.02	.0050-	.0002	.073								
12	3.01	3.15	.453	.0461	.017	8.02	8.02	.0072-	.0004	.045								
13	3.01	3.15	.461	.0453	.005	10.01	10.01	.0100-	.0002	.124								
15	3.01	3.15	.457	.0435	.003-	12.00	12.00	.0130-	.0000	.146								

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		MODEL AXIS		STAB		NEW 343-0		DATE	
		MODEL AXIS		STAB		NEW 343-0		DATE	
Pt	α_f	α	C_L	C_D	C_m	ψ_f	ψ	C_f	C_c
23	0.03-	8.18-	.480-	.0554	.111-	.00-	.00	.0026-	.001-
25	4.03-	4.11-	.275-	.0345	.001-	.00-	.00	.0004-	.001-
27	.02-	.02-	.026-	.0284	.043-	.00-	.00-	.0013-	.002
29	4.01	4.77	.196	.0740	.001	.00-	.00	.0015-	.001-
33	8.02	8.15	.433	.0311	.045	.00-	.00	.0013-	.001-
37	12.01	12.21	.601	.0772	.092	.00-	.00-	.0020-	.004
39	14.02	14.25	.775	.0943	.114	.00-	.00-	.0025-	.005
41	16.02	16.29	.917	.1307	.130	.00-	.00	.0015	.001-
47	19.01	19.29	.995	.1612	.131	.00-	.00	.0006	.000-
49	20.02	20.29	.850	.2472	.093	.00-	.00	.0063	.000-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

P	α_i	α	C_L	C_D	FORCE AXES		ψ_i	ψ	TEST		MM	7/05/62
					COASTAL AXES	STAB			340-0	00-0		
					C_m	STAB			C_n	C_f		
1	8.01	3.16	.424	.0538	.111		.00	.00	.0001	.0005		.000
5	4.03	4.11	.256	.0351	.080		.00	.00	.0002	.0002		.001
11	.00	.01	.034	.0286	.043		.00	.00	.0000	.0007		.000
13	4.02	4.08	.177	.0336	.003		.00	.00	.0004	.0009		.002
15	8.02	3.15	.430	.0499	.040		.00	.00	.0000	.0009		.002
17	10.03	12.23	.664	.0763	.093		.00	.00	.0005	.0011		.002
19	14.00	14.84	.771	.0916	.114		.00	.00	.0003	.0020		.002
21	16.02	16.29	.859	.1229	.133		.01	.01	.0007	.0006		.000
23	19.02	19.30	.895	.1727	.132		.01	.01	.0010	.0043		.005
25	20.03	20.30	.867	.2501	.077		.01	.01	.0025	.0048		.011

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXES		STAB		MOMENT AXES		STAB		TEST	DATE
										343-0	7/06/62
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_z	SUM	120°
7	8.02-	5.17-	.459-	.0569	.111-	.01-	.01-	.0009-	.0024-		.001
9	4.03-	4.11-	.264-	.0360	.079-	.01-	.01-	.0010-	.0037-		.000
11	.01	.00	.036-	.0295	.040-	.01-	.01-	.0014-	.0050-		.003
13	4.02	4.07	.153	.0356	.004	.01-	.01-	.0004-	.0046-		.002
15	8.02	8.15	.423	.0519	.049	.01-	.01-	.0003-	.0055-		.003
17	12.01	12.21	.653	.0777	.095	.01-	.01-	.0004-	.0062-		.000
19	14.03	14.20	.757	.0975	.114	.01-	.01-	.0002-	.0074-		.006
21	15.02	15.28	.833	.1215	.132	.01-	.01-	.0007	.0012-		.001-
23	18.01	18.29	.892	.1758	.132	.01-	.01-	.0017	.0008-		.004-
25	20.03	20.29	.941	.2456	.084	.01-	.01-	.0013-	.0044		.010-

LOW SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXIS STAB TEST 343-0 DATE 7/25/52

MOMENT AXIS STAB RUN 70-0 120

PT	α	C_L	C_D	C_m	ψ_L	ψ	C_H	C_L	C_C
3	8.02	8.17	.497	.0790	.106	.01	.0109	.0325	.017
5	4.02	4.09	.254	.0540	.050	.01	.0076	.0320	.015
7	.02	.02	.020	.0406	.045	.01	.0042	.0325	.013
9	4.02	4.06	.211	.0325	.005	.01	.0019	.0357	.015
11	8.01	8.15	.559	.0699	.032	.01	.0007	.0341	.015
13	12.00	12.21	.592	.0587	.079	.01	.0057	.0360	.017
17	16.01	16.25	.593	.1492	.118	.01	.0073	.0393	.012
19	18.01	18.31	.958	.1555	.129	.01	.0096	.0373	.009
21	20.02	20.20	.903	.2697	.076	.01	.0320	.0313	.006

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET									
MODEL NAME		STAB		TEST 343-0		DATE 7/26/68			
GEOMETRY NAME		STAB		REV 71-0		120°			
PT	α	C_L	C_D	C_M	ψ	C_H	C_L	C_C	
3	3.03-	9.13-	.494-	.0692	.01-	.01-	.0034-	.0274-	.014
5	4.02-	4.10-	.256-	.0465	.01-	.01-	.0051-	.0250-	.011
7	.02-	.02-	.013-	.0388	.01-	.01-	.0022-	.0252-	.011
9	4.02	4.06	.214	.0441	.01-	.01-	.0010-	.0263-	.011
13	8.00	9.14	.464	.0507	.01-	.01-	.0007	.0273-	.013
15	12.02	12.23	.650	.0896	.01-	.01-	.0025	.0297-	.016
17	16.01	16.20	.800	.1376	.01-	.01-	.0034	.0328-	.013
21	18.02	18.31	.936	.1762	.01-	.01-	.0084	.0302-	.008
23	20.03	20.30	.833	.2509	.01-	.01-	.0007	.0365-	.008

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α	α	FORCE ADJUST			STAB			PUT			DATE		
			C_D	C_L	C_M	ψ_i	ψ_e	ψ	C_D	C_L	C_M	DATE	TIME	100.
5	8.00	7.86	.0757	.475	.110	.01	.01	.01	.0055	.0200	.007	7/06/62		
7	4.00	4.07	.0394	.234	.073	.01	.01	.01	.0040	.0130	.003			
9	.02	.02	.0327	.011	.044	.01	.01	.01	.0020	.0150	.003			
11	4.01	4.07	.0307	.214	.073	.01	.01	.01	.0020	.0176	.007			
13	8.02	8.16	.0755	.454	.042	.01	.01	.01	.0003	.0190	.010			
15	12.00	12.21	.0311	.503	.052	.01	.01	.01	.0013	.0211	.012			
17	16.02	16.29	.1273	.666	.123	.01	.01	.01	.0076	.0225	.009			
19	18.02	18.21	.1655	.724	.139	.01	.01	.01	.0081	.0227	.008			
21	20.02	20.30	.2396	.908	.073	.01	.01	.01	.0050	.0239	.004			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	PORT AXES				STAR				REV	343-0	REV	75-0	REV	7/26/62
			C_L	C_D	C_M	ψ_L	ψ	C_N	C_I	C_C						
3	9.01-	9.15-	.473-	.0560	.111-	.01-	.01-	.0220-	.0175-	.003						
5	4.02-	4.09-	.234-	.0347	.080-	.01-	.01-	.0014-	.0100-	.002						
7	.00-	.00	.005-	.0260	.043-	.01-	.01-	.0002-	.0095-	.004						
9	4.02	4.03	.216	.0340	.060	.01-	.01-	.0007	.0050-	.004						
13	0.02	4.15	.452	.0500	.047	.01-	.01-	.0003	.0104-	.003						
15	12.01	12.21	.650	.0754	.092	.01-	.01-	.0011	.0112-	.005						
17	16.50	16.27	.563	.1241	.131	.01-	.01-	.0023	.0130-	.006						
21	18.03	18.32	.425	.1601	.142	.01-	.01-	.0027	.0057-	.003						
23	20.01	20.31	.539	.2200	.154	.01-	.01-	.0020	.0133-	.007						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

MODEL NAME		STAB		WIND 343-0		WIND 74-0		WIND 7/35/52	
MODEL NAME		STAB		WIND 343-0		WIND 74-0		WIND 7/35/52	
Pt	α	C_L	C_D	C_M	ψ_L	ψ	C_n	C_f	C_c
5	8.03	9.17	.0588	.111	.01	.01	.0003	.0048	.001
7	4.01	4.09	.0343	.080	.01	.01	.0023	.0034	.003
9	.00	.00	.0273	.042	.01	.01	.0010	.0072	.003
11	4.02	4.02	.0326	.001	.01	.01	.0013	.0072	.002
13	8.02	9.16	.0695	.047	.01	.01	.0003	.0046	.003
15	12.00	12.20	.0749	.092	.01	.01	.0002	.0033	.005
17	16.02	16.23	.1233	.132	.01	.01	.0003	.0030	.006
19	18.03	18.32	.1601	.143	.01	.01	.0002	.0135	.011
21	20.02	20.24	.2320	.252	.01	.01	.0033	.0119	.021

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

MODEL AIRS STAB
 MOMENT AXES STAB

TEST 343-0
 RUN 75-0

DATE

7/26/62

Pt	α	C_L	C_D	C_M	ψ_L	ψ	C_n	C_L	C_D
3	8.03	.602	.0005	.110	.01	.01	.0005	.0194	.000
5	4.04	.240	.0000	.073	.01	.01	.0043	.0175	.000
7	.01	.011	.0020	.043	.01	.01	.0031	.0154	.007
9	4.02	.216	.0057	.001	.01	.01	.0017	.0157	.000
11	3.02	.458	.0539	.044	.01	.01	.0000	.0173	.010
13	12.02	.661	.0900	.083	.01	.01	.0009	.0132	.010
15	16.03	.800	.1402	.129	.01	.01	.0023	.0193	.012
17	19.04	.912	.1622	.140	.01	.01	.0032	.0234	.019
19	20.02	.996	.2431	.074	.01	.01	.0102	.0297	.020

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_I	α	PORT AIRS				STAB				NW 343-0				SW 76-0				SW 120°			
			C_L	C_D	C_M	ψ_L	ψ	C_L	C_D	C_M	ψ_L	ψ	C_L	C_D	C_M	ψ_L	ψ	C_L	C_D	C_M	ψ_L	ψ
1	8.03-	8.16-	.49-	.096	.138	.01-	.01-	.0131			.01-	.01-	.0229			.017-						
2	4.00-	4.07-	.245	.0460	.073	.01-	.01-	.0371			.01-	.01-	.0260			.011-						
3	.02	.02	.012-	.0378	.041-	.01-	.01-	.0245			.01-	.01-	.0250			.010-						
4	4.03	4.02	.222	.0443	.090-	.01-	.01-	.0320			.01-	.01-	.0245			.010-						
11	8.02	8.16	.466	.0901	.042	.01-	.01-	.0307			.01-	.01-	.0240			.012-						
12	10.02	10.20	.574	.0728	.055	.01-	.01-	.0290-			.01-	.01-	.0245			.014-						
13	12.00	12.21	.677	.0697	.037	.01-	.01-	.0215-			.01-	.01-	.0272			.014-						
21	12.00	12.21	.575	.0597	.058	.01-	.01-	.0312-			.01-	.01-	.0275			.014-						
22	16.01	16.24	.573	.1363	.126	.01-	.01-	.0240-			.01-	.01-	.0302			.007-						
12	12.03	12.11	.619	.1707	.133	.01-	.01-	.0243-			.01-	.01-	.0320			.017-						
21	20.01	20.29	.701	.2451	.105	.01-	.01-	.0145-			.01-	.01-	.0337			.011-						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PI	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_I	C_C
3	8.02-	.495-	.0778	.107-	.01-	.01-	.013-	.0339	.003-
5	4.00-	.203-	.0025	.073-	.01-	.01-	.0050	.0347	.010-
7	.00-	.012-	.0454	.043-	.01-	.01-	.0060	.0336	.010-
9	4.01	.212	.0490	.001-	.01-	.01-	.0033	.0341	.010-
11	3.01	.450	.0662	.042	.01-	.01-	.0007	.0343	.010-
13	12.03	.600	.0254	.092	.01-	.01-	.0025-	.0349	.010-
15	16.02	.637	.1453	.121	.01-	.01-	.0052-	.0371	.010-
17	10.02	.933	.0815	.132	.01-	.01-	.0067-	.0353	.014-
19	20.02	.399	.2543	.102	.01-	.01-	.0174-	.0334	.020-

TEST 343-0
DATE 7/09/62

PORT AIR STAB
PORT AIR STAB

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET														
PT	α_1	α	FORCE COEFF				STAG		NM	JCS-0	NM	JCS-0	MM	7/06/62
			C_D	C_L	C_M	ψ_L	ψ	STAG						
5	4.02-	4.00-	.0201	.203-	.13-	12.01	12.01			.0139-	.0053-			120.
9	.00	.00	.0134	.022	.000-	12.02	12.02			.0139-	.0029-			
11	4.02	4.00	.0244	.237	.042-	12.02	12.02			.0139-	.0011-			
13	0.01	0.15	.0421	.407	.006-	12.02	12.02			.0139-	.0003			
15	12.02	12.23	.0718	.633	.027	12.02	12.01			.0139-	.0019			
17	10.01	10.23	.1163	.377	.062	12.01	12.01			.0200-	.0042			
19	16.02	14.32	.1783	.493	.066	12.02	12.02			.0139-	.0141			
21	20.03	20.32	.2244	.926	.055	12.02	12.02			.0212-	.0179			

STAD	STAD
STAD	STAD

DATE	TIME	LOCATION	REMARKS
7/10/62	1200	7/10-0	1200
7/10/62	1200	7/10-0	1200

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											
		COEF. LIFT		STAB.				COEF. DRAG		STAB.	
		MODEL AND		STAB.				MODEL AND		STAB.	
M	α	C_L	C_D	C_M	ψ	ψ	C_L	C_D	C_M	ψ	C_L
6	4.02	2.34	.0330	.081	.00	.00	.0013	.0013	.0013	.00	.003-
10	.01	.007	.0239	.043	.00	.00	.0016	.0016	.0013	.00	.003-
12	4.02	2.10	.0314	.001	.00	.00	.0015	.0015	.0013	.00	.002-
14	0.00	.449	.0405	.047	.00	.00	.0017	.0017	.0021	.00	.003-
16	12.00	.054	.0749	.091	.00	.00	.0012	.0012	.0016	.00	.003-
18	16.01	.352	.1195	.140	.00	.00	.0026	.0026	.0005	.00	.008-
20	18.02	.992	.1644	.143	.00	.00	.0023	.0023	.0003	.00	.007-
22	20.01	.697	.2307	.100	.00	.00	.0095	.0095	.0026	.00	.006-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET									
PORTS AXIS		STAD		TEST		DATE		7/05/62	
MOMENT AXIS		STAD		DATE		120.			
Pt	α	α_L	C_D	C_M	ψ_L	ψ	C_H	C_L	C_C
5	4.02-	4.03-	.0230	.049-	0.02-	0.02-	.0127	.0014	.111-
7	.00-	.00	.0214	.064-	0.02-	0.02-	.0122	.0002	.109-
9	4.02	4.09	.0257	.025-	0.02-	0.02-	.0125	.0016-	.109-
11	3.01	6.13	.0447	.016	0.02-	0.02-	.0123	.0028-	.107-
13	12.01	12.21	.0732	.055	0.02-	0.02-	.0142	.0041-	.108-
15	16.02	15.29	.1180	.091	0.03-	0.03-	.0149	.0076-	.108-
17	19.01	16.50	.1727	.094	0.02-	0.02-	.0123	.0095-	.101-
21	20.02	20.50	.2467	.071	0.02-	0.02-	.0052	.0305-	.073-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	FORCE AXES				STAG		MST		DATE	
			C_L	C_D	C_M	ψ_t	ψ	C_n	C_z	C_y	7/06/62	120.
3	0.03	0.04	.233	.0207	.113	12.01	12.01	.0104	.0020			
5	.01	.01	.025	.0145	.031	12.02	12.02	.0175	.0006			
7	4.01	4.03	.241	.0229	.044	12.01	12.01	.0109	.0015			
11	0.01	0.15	.072	.0414	.010	12.01	12.01	.0211	.0000			
13	12.01	12.22	.603	.0727	.022	12.01	12.01	.0207	.0039			
15	10.02	10.29	.842	.1171	.036	12.01	12.01	.0207	.0035			
17	10.01	10.70	.753	.1734	.037	12.01	12.01	.0173	.0145			
19	10.01	10.30	.952	.1022	.036	12.01	12.01	.0173	.0106			
21	20.00	20.32	.920	.2404	.047	12.02	12.02	.0201	.0336			
23	20.03	20.32	.925	.2301	.048	12.02	12.02	.0204	.0231			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET														PORT AIRS		STAD		ALT		343-0		DATE		7/06/62	
														-ORIENT AIRS		STAD		DATE		343-0		7/06/62			
Pt	α_i	α	C_L	C_D	C_m	ψ_t	ψ	C_H	C_I	C_C															
27	3.02	3.09	.223	.0520	.164	.00	.00	.0010	.0002	.001															
3	3.01	4.00	.047	.0434	.161	.00	.00	.0000	.0000	.000															
5	.00	.00	.300	.0526	.129	.00	.00	.0004	.0003	.001															
13	4.02	4.18	.532	.0749	.089	.00	.00	.0003	.0004	.001															
15	5.03	3.28	.798	.1111	.052	.00	.00	.0001	.0013	.002															
17	3.03	3.23	.797	.1101	.050	.00	.00	.0000	.0022	.001															
19	16.03	16.35	1.042	.1623	.015	.00	.00	.0002	.0024	.002															
21	16.02	16.40	1.233	.2316	.030	.00	.00	.0005	.0014	.001															
23	18.02	19.41	1.252	.3009	.032	.00	.00	.0007	.0003	.020															
25	20.01	20.29	1.200	.3749	.007	.00	.00	.0005	.0034	.036															

LOW-SPEED WIND TUNNEL FINAL DATA SHEET									
		POWELL AREA		STAG		WIND		DATE	
		MOMENT AREA		STAG		RUE		9	
Pt	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_f	C_c
3	4.02-	0.03-	0.09-	0.035	12.01-	12.01-	0.0343	0.0038-	0.204-
5	4.02-	0.035-	0.034	0.242-	12.00-	12.00-	0.0373	0.0049-	0.212-
7	0.00-	0.14	0.034	0.214-	12.02-	12.02-	0.0373	0.0070-	0.209-
9	4.01	0.02	0.031	0.183-	12.00-	12.00-	0.0373	0.0075-	0.206-
11	4.01	0.02	0.030	0.183-	12.00-	12.00-	0.0373	0.0075-	0.204-
13	0.00	0.23	0.031	0.104-	12.01-	12.01-	0.0373	0.0129-	0.189-
15	12.01	12.03	0.057	0.130-	12.01-	12.01-	0.036	0.0149-	0.193-
17	15.01	15.04	0.031	0.108-	12.01-	12.01-	0.0323	0.0236-	0.183-
19	15.02	15.05	0.005	0.108-	12.00-	12.00-	0.0427	0.0241-	0.185-
23	19.00	19.41	0.344	0.089-	12.01-	12.01-	0.0364	0.0445-	0.161-
25	19.00	19.42	0.323	0.091-	12.01-	12.01-	0.0323	0.0423-	0.166-
27	20.00	20.43	0.168	0.079-	12.01-	12.01-	0.0349	0.0548-	0.139-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PROJECT NAME

STA 2

WINDMILL SETS

STA 3

TEST 20-3-3

DATE

7/06/62

REV

00-3

1

120°

Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_H	C_I	C_C
3	3.02-	3.04-	.075-	.0001	.037-	3.03-	3.03-	.0204	.0033-	.126-
5	4.02-	3.03-	.002	.0033	.018-	3.03-	3.03-	.0217	.0039-	.129-
7	.02-	.12	.446	.0736	.089-	3.02-	3.02-	.0224	.0063-	.130-
9	4.01	4.02	.053	.1008	.054-	3.03-	3.03-	.0216	.0071-	.128-
11	3.02	3.03	.035	.1450	.121-	3.03-	3.03-	.0223	.0092-	.129-
13	12.00	12.30	1.103	.0040	.006-	3.03-	3.03-	.0226	.0113-	.127-
15	15.01	15.44	1.302	.0041	.035-	3.03-	3.03-	.0207	.0148-	.123-
17	16.01	16.43	1.347	.0718	.046-	3.03-	3.03-	.0214	.0403-	.090-
19	20.01	20.01	1.200	.0413	.056-	3.03-	3.03-	.0203	.0268-	.116-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

MODEL AIRS STAG STAG DATE 7/06/62
 MOUNT AIRS STAG DATE 120.

PI	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C
3	3.02-	1.04-	.077-	.0668	.024-	.01-	.01-	.0003-	.0003-	.003-
5	4.02-	3.07-	.177	.0534	.031-	.01-	.01-	.0005	.0014-	.001
7	.02-	.11	.023	.0327	.106-	.01-	.01-	.0003	.0019-	.001-
9	0.00	4.00	.003	.104	.126-	.01-	.01-	.0005	.0019-	.003
11	3.01	3.30	.025	.1531	.098-	.01-	.01-	.0003-	.0035-	.004
13	10.01	10.07	1.107	.2134	.053-	.01-	.01-	.0002	.0042-	.005
15	10.01	10.04	1.072	.2000	.010-	.01-	.01-	.0011	.0018-	.004-
17	10.00	10.02	1.034	.2354	.009-	.01-	.01-	.0010	.0064	.015-
19	20.02	20.00	1.222	.4424	.016-	.01-	.01-	.0044	.0009	.022-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												7/06/62
Pt	α_i	α	C_L	C_D	FOOT AIRS		ψ_i	ψ	INCH AIRS		DATE	
					C_m	STAG			C_n	STAG		
3	3.02-	3.04-	.083-	.0530	.236-	0.02	0.02	.0100-	.0003	.117	120.	
5	4.02-	3.70-	.143	.0623	.223-	0.03	0.02	.0101-	.0007	.123		
7	.03-	.11	.447	.0776	.195-	0.02	0.02	.0211-	.0022	.129		
9	4.01	4.22	.523	.1021	.136-	0.03	0.03	.0200-	.0033	.126		
11	3.00	3.29	.746	.1403	.126-	0.02	0.02	.0209-	.0025	.134		
13	12.00	12.37	1.187	.2027	.070-	0.03	0.03	.0236-	.0040	.126		
15	16.01	16.44	1.200	.2916	.052-	0.03	0.03	.0237-	.0057	.120		
17	12.00	12.43	1.341	.3735	.046-	0.03	0.03	.0173-	.0340	.058		
19	20.01	20.42	1.029	.4390	.049-	0.02	0.02	.0272-	.0266	.066		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

TEST AND STAR										343-0	7/06/62
REMARKS										00-0	120.
PT	α	α'	C_L	C_D	C_M	ψ	ψ'	C_N	C_Y	C_C	
5	6.02	8.03	.062	.0525	.253	12.02	12.02	.0304	.0007	.189	
7	4.00	3.93	.233	.0564	.247	12.01	12.01	.0330	.0013	.200	
11	.02	.12	.464	.0750	.221	12.01	12.01	.0266	.0027	.205	
13	4.01	4.23	.708	.1011	.187	12.01	12.01	.0270	.0046	.204	
15	0.01	3.31	.941	.1461	.158	12.01	12.01	.0330	.0044	.207	
17	12.01	12.38	1.199	.2033	.125	12.01	12.01	.0383	.0057	.208	
19	16.01	16.44	1.375	.3147	.102	12.01	12.01	.0315	.0199	.180	
21	18.01	18.45	1.406	.3776	.089	12.01	12.01	.0321	.0366	.157	
23	20.01	20.43	1.342	.4209	.071	12.01	12.01	.0344	.0470	.116	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

MODEL NO. STAB 343-0 DATE '7/06/62

ROCKET AREA STAB 09-0 120.

PI	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C
3	4.02	3.97	.182	.1007	.203	.02	.02	.0020	.0027	.006
5	.01	.12	.420	.1124	.166	.02	.02	.0026	.0026	.005
13	4.01	4.21	.556	.1356	.127	.02	.02	.0023	.0024	.004
7	8.02	8.30	.906	.1751	.092	.02	.02	.0017	.0023	.004
12	12.00	12.35	1.136	.2347	.057	.02	.02	.0016	.0039	.003
9	16.00	15.42	1.353	.3112	.018	.02	.02	.0025	.0027	.005

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
MODEL NAME			STAG			343-0			7/06/62	
MODEL ASST			STAG			343-0			120°	
PI	σ_i	σ	C_L	C_D	C_M	ψ_L	ψ	C_H	C_I	C_C
2	4.03	4.04	.187	.0680	.047	.02	.02	.0012	.0035	.002
3	.02	.01	.034	.0612	.056	.02	.02	.0013	.0029	.002
4	4.02	4.10	.254	.0553	.013	.02	.03	.0012	.0032	.002
5	3.00	3.15	.481	.0819	.032	.02	.02	.0010	.0040	.001
6	12.02	12.23	.609	.1072	.074	.02	.02	.0012	.0043	.001
7	16.02	16.30	.893	.1435	.109	.02	.02	.0019	.0046	.000

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
		POINT AXIS		STAG				DATE		
		PROBE AXIS		STAG				7/06/62		
Pt	α	α_1	C_L	C_D	C_M	ψ_1	ψ	C_n	C_f	C_c
3	3.99-	4.03-	.144	.3733	.176-	.02-	.02-	.0025	.0017-	.006-
2	.09	.90	.293	.0660	.131-	.02-	.02-	.0036	.0015-	.010-
5	4.10	4.00	.534	.1050	.090-	.03-	.03-	.0033	.0011-	.012-
6	3.25	2.01	.770	.1271	.054-	.03-	.03-	.0023	.0014-	.010-
7	12.32	12.01	1.015	.1654	.019-	.03-	.03-	.0033	.0020-	.010-
8	16.39	15.01	1.220	.2484	.016	.03-	.03-	.0037	.0006-	.011-

STATION	STATION
STATION	STATION

343-0	7/08/22
72-1	120.

STAJ 343-0 7/05/62

STAJ 343-0 7/05/62

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET															PORT AREA	STAB	NEW 243-0															DATE	7/06/62
															CURRENT AREA				STAB					NEW 243-0								DATE	7/06/62
Pt	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C	ψ	C_N	C_L	C_C					DATE	7/06/62													
7	.00	.00	.007	.0217	.042	12.00	17.00	.0139	.0037	.173																							
9	.00	.00	.012	.0310	.009	8.02	6.02	.0106	.0021	.107																							
11	.00	.00	.024	.0353	.005	6.03	6.03	.0030	.0024	.074																							
15	.00	.00	.030	.0354	.015	4.01	4.01	.0001	.0014	.047																							
17	.00	.01	.035	.0341	.024	2.01	2.01	.0024	.0011	.020																							
19	.00	.01	.038	.0313	.025	.02	.02	.0027	.0034	.010																							
21	.00	.01	.043	.0321	.026	2.03	2.03	.0006	.0031	.019																							
26	.00	.01	.042	.0330	.021	4.01	4.01	.0033	.0010	.044																							
28	.00	.01	.037	.0323	.011	6.00	6.00	.0078	.0012	.072																							
30	.00	.00	.027	.0316	.004	8.02	8.02	.0110	.0014	.100																							
32	.00	.00	.003	.0251	.036	12.00	12.00	.0185	.0010	.160																							

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES		MOMENT AXES		STAB		STAB		NOT	343-0	DATE	7/26/62
Pt	α_i	α	C_L	C_D	C_M	ψ_i	ψ	C_n	C_l	C_c	120.
28	4.02-	4.07-	.187-	.0356	.017-	.00-	.00	.0047	.0014-	.006-	
24	.01	.01	.009-	.0296	.024-	.01-	.01-	.0031	.0010-	.006-	
10	.00-	.00	.029-	.0280	.019-	.01-	.01-	.0026	.0000-	.004-	
12	4.02	4.03	.226	.3345	.027-	.01-	.01-	.0020	.0003-	.004-	
14	0.02	8.17	.490	.3524	.043-	.01-	.01-	.0013	.0011-	.002-	
16	12.01	12.24	.731	.0830	.052-	.01-	.01-	.0012	.0012-	.001-	
18	16.02	16.32	.962	.1364	.062-	.01-	.01-	.0015	.0014-	.003-	
20	19.03	18.35	1.016	.1792	.059-	.01-	.01-	.0014	.0002	.003-	
22	20.01	20.32	.992	.2662	.075-	.01-	.01-	.0078-	.0066-	.002-	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
FORCE AXES			STAG			TEST			DATE	
MOMENT AXES			STAG			NO. 343-3			1	
						NO. 343-3			120.	
Pt	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_T	C_C	
38	4.00	.243	.0364	.052	.00	.00	.0015	.0009	.003	
40	.02	.002	.0296	.065	.00	.00	.0011	.0000	.003	
42	4.02	.253	.0373	.079	.00	.00	.0011	.0000	.003	
44	8.02	.523	.0577	.095	.00	.00	.0033	.0003	.001	
46	12.01	.770	.0916	.106	.00	.00	.0000	.0010	.001	
48	16.02	.994	.1402	.110	.00	.00	.0001	.0018	.000	
50	18.02	1.043	.1838	.107	.00	.00	.0009	.0004	.003	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	FORCE AXES			STAB			MOMENT AXES			DIM		
	α_i	α	C_L	C_D	C_M	ψ_i	γ	C_N	C_Y	C_z	DATE	TIME
7	4.01-	4.07-	.295-	.0394	.148-	.04-	.04-	.0035	.0002-	.003-	7/06/62	120.
9	.03	.04	.059.	.0317	.167-	.02-	.02-	.0004	.0002-	.001-		
11	4.00	4.09	.307	.0427	.183-	.01-	.01-	.0003	.0001-	.001-		
13	6.03	6.21	.573	.0639	.196-	.01-	.01-	.0005	.0009-	.002-		
15	12.03	12.27	.791	.1158	.156-	.00-	.00-	.0003-	.0020-	.001		
17	16.00	16.31	.986	.1697	.107-	.00-	.00-	.0002	.0023-	.000		
19	18.02	18.34	1.029	.2162	.082-	.00-	.00	.0011	.0000-	.005-		
23	20.00	20.32	1.019	.2986	.161-	.02	.02	.0010	.0001-	.023-		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

P1	α_1	α	MOUL AXES			STAB			TEST			DATE	7/06/32
			C_L	C_D	C_M	ψ_L	ψ	C_H	C_L	C_C	120°		
3	4.02	4.08	.217	.0431	.120	.01	.01	.0000	.0013	.001			
5	.00	.01	.032	.0361	.138	.01	.01	.0013	.0011	.006			
7	4.01	4.10	.297	.0476	.162	.02	.02	.0010	.0011	.001			
9	6.01	6.16	.560	.0707	.180	.02	.02	.0009	.0004	.002			
11	12.00	12.25	.803	.1063	.198	.02	.02	.0003	.0024	.000			
13	16.01	16.33	1.021	.1613	.209	.02	.02	.0009	.0017	.000			
15	16.01	16.35	1.003	.2066	.217	.02	.02	.0011	.0011	.003			
17	20.03	20.36	1.075	.2749	.228	.02	.02	.0039	.0036	.016			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	FORCE AXIS		MOMENT AXIS		STAB		STAS		NEW		OLD		DATE	
	α_i	α	C_L	C_D	C_M	ψ_i	ψ	C_H	C_I	C_T				
5	4.02-	4.09-	.228-	.0412	.094-	.02	.02	.0017	.0016-	.000			7/06/62	
7	.00	.00	.027	.0354	.115-	.02	.02	.0017	.0016-	.000			120.	
9	4.02	4.10	.277	.0442	.133-	.02	.02	.0019	.0026-	.001-				
11	8.00	8.17	.547	.0656	.152-	.02	.02	.0019	.0010-	.003-				
13	12.02	12.20	.787	.1000	.164-	.02	.02	.0020	.0020-	.000				
15	16.02	16.33	.999	.1538	.173-	.02	.02	.0010	.0014-	.003-				
17	16.02	16.35	1.066	.1996	.183-	.02	.02	.0039	.0020	.005-				
19	20.01	20.33	1.046	.2737	.205-	.02	.02	.0029-	.0021	.007-				

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	C_L	C_D	FORCE COEFFS		ψ_i	ψ	TEST		DATE	7/06/62
					INFLUENT	STAG			NO	3-3-0		
					STAG	STAG			100-0	1		120
3	4.02-	4.09-	.250-	.0376	.045-	.02	.02	.02	.0044	.0030-		.015-
7	.01-	.01-	.001	.0304	.036-	.02	.02	.02	.0033	.0027-		.006-
9	4.02	4.09	.250	.0380	.065-	.02	.02	.02	.0021	.0016-		.006-
11	0.02	0.17	.504	.0570	.077-	.02	.02	.02	.0005	.0016-		.002-
13	12.03	12.27	.766	.0394	.091-	.02	.02	.02	.0003	.0023-		.001-
17	10.03	10.33	.970	.1419	.098-	.02	.02	.02	.0000	.0016-		.000
19	12.02	12.34	1.033	.1051	.104-	.01	.01	.01	.0010	.0014		.003-
21	20.01	20.33	1.024	.2547	.136-	.02	.02	.02	.0037-	.0034		.013-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
PORT AREA										
STAB										
MOMENT AREA										
STAB										
Pt	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_f	C_C
3	4.01-	4.09-	.267-	.0389	.005-	.03	.03	.0042	.0032-	.000
5	.01-	.01-	.018-	.0298	.018-	.03	.03	.0040	.0031-	.007-
7	4.02	4.09	.228	.0363	.026-	.03	.03	.0031	.0021-	.005-
9	12.02	6.17	.490	.0545	.036-	.02	.03	.0003	.0015-	.000
11	12.01	12.24	.733	.0554	.049-	.03	.03	.0002	.0023-	.000
13	16.01	16.31	.954	.1358	.054-	.03	.03	.0011	.0015-	.000
15	18.00	18.32	1.020	.1804	.062-	.03	.03	.0011	.0006	.005-
19	20.02	20.33	1.003	.2479	.096-	.03	.03	.0070-	.0028	.010-
TEST 343-B										
DATE 7/06/62										
NO 101-C										
120.										

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PI	α_1	α	C_L	C_D	C_M	ψ_1	ψ	C_{D1}	C_L	C_D	REV	DATE
5	4.02	4.11	.311	.0437	.091	.00	.00	.0033	.0019	.015	343-0	7/06/62
7	.00	.01	.061	.0325	.078	.00	.00	.0042	.0022	.003	102-0	120
9	4.03	4.08	.182	.0356	.067	.00	.00	.0035	.0018	.007		
11	8.02	8.16	.446	.0504	.058	.00	.00	.0009	.0008	.002		
15	12.02	12.23	.693	.0796	.047	.00	.00	.0001	.0009	.001		
17	16.03	16.31	.918	.1287	.040	.00	.00	.0003	.0005	.004		
19	16.00	18.30	.979	.1694	.033	.00	.00	.0010	.0015	.006		
21	20.02	20.32	.961	.2407	.019	.00	.00	.0026	.0018	.013		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES STAD TEST 343-0 DATE 7/06/62
 MOMENT AXES STAD RUN 103-0 120.

Pt	α_i	α	C_L	C_D	C_M	ψ_s	ψ	C_n	C_l	C_c
5	4.01-	4.01-	.011-	.0468	.036-	8.01	8.01	.0141-	.0011-	.109
7	.03-	.05	.259	.0554	.004-	8.00	8.00	.0170-	.0021	.112
11	4.00	4.16	.537	.0750	.084-	8.01	8.01	.0137-	.0032	.117
13	8.01	8.26	.319	.1110	.098-	8.01	8.01	.0217-	.0043	.122
15	12.02	12.36	1.075	.1646	.100-	8.01	8.01	.0249-	.0058	.128
17	16.01	16.41	1.293	.2538	.091-	8.02	8.02	.0261-	.0114	.127
21	18.01	18.42	1.312	.3206	.099-	8.01	8.01	.0207-	.0314	.093
25	20.02	20.43	1.303	.3708	.101-	8.01	8.01	.0247-	.0429	.075

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		STAB		343-3		7/06/62	
		STAB		104-0		120°	
Pt	α	C_L	C_D	C_M	ψ	C_L	C_D
2	4.01	.023	.0520	.014	.00	.0033	.010
3	.01	.246	.0574	.027	.00	.0022	.013
4	4.02	.514	.0786	.042	.00	.0026	.011
5	8.01	.789	.1152	.053	.00	.0026	.009
6	12.00	1.053	.1673	.054	.00	.0026	.005
7	16.03	1.277	.2450	.047	.00	.0009	.006
8	18.00	1.342	.2904	.049	.00	.0024	.013
9	20.09	1.231	.3965	.075	.00	.0036	.020

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	C_L	C_D	FORCE AXES		MOMENT AXES		ψ	TEST		DATE
					C_m	ψ_m	C_n	ψ_n		C_L	C_D	
13	4.51-	3.96-	.107	.0759	.037-	.00-	.0040	.00-	.00	.0044-	.013-	7/25/62
14	.50-	.11	.375	.0376	.053-	.00-	.0047	.00-	.00	.0037-	.023-	120.
15	.51	4.21	.639	.1139	.063-	.00-	.0052	.00-	.00	.0027-	.005-	
16	6.01	8.29	.919	.1601	.073-	.00-	.0042	.00-	.00	.0034-	.005-	
18	12.00	12.37	1.175	.2158	.074-	.00-	.0051	.00-	.00	.0040-	.001-	
19	16.52	16.46	1.414	.3077	.060-	.01-	.0027	.01-	.01	.0010-	.006-	
20	18.52	18.45	1.359	.3974	.063-	.00-	.0030	.00-	.00	.0023-	.012-	
21	20.02	20.42	1.299	.4508	.076-	.00-	.0062	.00-	.00	.0009	.019-	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
PI		STAB		TEST		DATE		7/2/52		
2		STAB		100-0		1		140°		
α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C	
8.02	8.17	.502	.0458	.069	12.02	12.02	.0226	.0049	.151	
8.02	8.17	.479	.0558	.008	4.02	4.02	.0058	.0048	.054	
8.02	8.16	.466	.0533	.006	.01	.01	.0024	.0016	.000	
8.03	8.17	.469	.0522	.006	4.01	4.01	.0037	.0021	.053	
8.02	8.17	.406	.0513	.037	8.00	5.00	.0134	.0038	.108	
8.02	8.17	.506	.0491	.069	12.01	12.01	.0273	.0047	.172	
8.02	8.17	.478	.0487	.034	8.02	8.02	.0191	.0062	.116	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXIS STAB
 MOMENT AXIS STAB

7/06/62

343-0

8

120.

107-0

Pt	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_M	C_L	C_C
3	16.01	16.30	.933	.1284	.031-	12.01-	12.01-	.0376	.0103-	.151-
5	16.02	16.31	.929	.1286	.047-	8.01-	8.01-	.0249	.0119-	.120-
9	16.02	16.31	.929	.1374	.013-	.01-	.01-	.0044-	.0043-	.000
11	16.02	16.31	.926	.1313	.020-	4.02	4.02	.0131-	.0025	.000
13	16.02	16.31	.940	.1317	.044-	8.00	8.00	.0214-	.0072	.113
15	16.02	16.32	.953	.1355	.076-	12.00	12.00	.0337-	.0099	.172
17	16.02	16.32	.973	.1408	.025-	4.02-	4.02-	.0147	.0067-	.034-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

MODEL NAME: STAD
 SCALE: 1/100
 TEST: 343-0
 DATE: 7/06/62
 STAB: STAB
 TEST: 105-0
 DATE: 120

Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_u	C_f	C_c
3	.01-	.01-	.004-	.0228	.040-	12.02-	12.02-	.0101	.0007-	.157-
5	.01-	.01-	.021-	.0230	.004-	8.03-	8.03-	.0032	.0007	.103-
7	.01-	.02-	.035-	.0325	.018	4.02-	4.02-	.0032-	.0014	.043-
9	.01-	.02-	.035-	.0319	.025	.00-	.00-	.0064-	.0001-	.007
11	.01-	.02-	.041-	.0237	.019	4.01	4.01	.0163-	.0015	.060
12	.01-	.01-	.025-	.0317	.002-	8.02	8.02	.0248-	.0019	.115
13	.01-	.01-	.004-	.0273	.033-	12.00	12.00	.0222-	.0024	.171
17	.01-	.02-	.037-	.0319	.026	.02-	.02-	.0031-	.0014-	.031-
19	.01-	.01-	.031-	.0321	.019	4.02-	4.02-	.0023-	.0002-	.039-
21	.01-	.02-	.040-	.0317	.025	2.03-	2.03-	.0077-	.0009	.012-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PRESSURES STAB TEST 343-0 DATE 7/05/62
 CORRECTION FACTS STAB 100-0

Pt	α_1	α	C_L	C_D	C_M	ψ_L	ψ	C_n	C_L	C_C
3	0.00	0.15	.469	.0460	.068-	12.02-	12.02-	.0207	.0074-	.166-
7	0.01	0.15	.469	.0524	.004-	4.01-	4.01-	.0509-	.0033-	.042-
9	0.00	0.14	.470	.0521	.006	.02-	.02-	.0111-	.0004-	.013
11	0.01	0.15	.475	.0553	.007-	4.01	4.01	.0210-	.0027	.070
13	0.01	0.16	.483	.0532	.035-	9.00	9.00	.0295-	.0047	.119
15	0.01	0.16	.503	.0511	.072-	12.00	12.00	.0394-	.0050	.133
17	0.01	0.16	.480	.0503	.033-	8.01-	8.01-	.0070	.0054-	.103-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

MODEL 343-0 DATE 7/06/62
 MOMENT AXES STAB 110-0 120.

Pt	α_i	α	C_L	C_D	C_M	ψ_i	ψ	C_n	C_l	C_c
3	16.01	16.30	.952	.1298	.078	12.01	12.01	.0274	.0151	.170
5	16.01	16.30	.943	.1306	.044	8.01	8.01	.0122	.0131	.102
7	16.01	16.30	.932	.1322	.021	4.02	4.02	.0020	.0094	.044
11	16.01	16.30	.924	.1353	.008	.01	.01	.0124	.0036	.017
13	16.01	16.30	.929	.1317	.017	4.00	4.00	.0244	.0016	.072
15	16.01	16.30	.937	.1336	.044	8.00	8.00	.0347	.0059	.128
17	16.01	16.31	.953	.1373	.078	12.01	12.01	.0464	.0081	.191
19	16.01	16.30	.923	.1351	.020	4.03	4.03	.0045	.0083	.049

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

TABLE AHEAD									
STAB									
STAB									
TEST 343-0									
DATE 7/06/62									
CUM 111-0									
120.									
Pt	α_1	α	C_L	C_D	C_M	ψ_1	ψ	C_L	C_C
3	.01-	.01-	.004	.0256	.038	12.03-	12.03-	.0037	.145-
7	.01-	.01-	.018	.0317	.004	8.03-	8.03-	.0029	.089-
9	.01-	.01-	.029	.0348	.017	4.03-	4.03-	.0102	.031-
11	.01-	.02-	.043	.0352	.029	.02-	.02-	.0172	.021
13	.01-	.02-	.050	.0366	.021	4.00	4.00	.0281	.075
15	.01-	.01-	.020	.0343	.004	8.02	8.02	.0385	.137
17	.01-	.01-	.001	.0283	.033	12.03	12.03	.0489	.202

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AREA STAB
MOMENT AREA STAB

WIND 343-0
WIND 112-0

DATE 7/06/62
120°

PT	α_T	α	C_L	C_D	C_M	ψ_T	ψ	C_N	C_L	C_C
3	.01-	.01-	.003	.0265	.035-	12.03-	12.03-	.0008	.0022	.147-
5	.01-	.01-	.014-	.0325	.003-	8.03-	8.03-	.0052-	.0028	.088-
7	.01-	.02-	.038-	.0361	.019	4.02-	4.02-	.0135-	.0037	.028-
9	.01-	.02-	.044-	.0372	.028	.01	.01	.0219-	.0040	.028
11	.01-	.02-	.044-	.0390	.021	4.01	4.01	.0342-	.0063	.083
13	.01-	.01-	.019-	.0378	.003-	8.01	8.01	.0446-	.0073	.140
15	.01-	.01-	.004	.0314	.035-	12.01	12.01	.0561-	.0071	.209

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXES		STAB		TEST	343-0	DATE	7/06/62
		MOMENT AXES		STAB		RUN	113-0	q	120.
Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_f	C_c
3	.01-	.01-	.004	.0216	.042	12.03-	12.03-	.0023-	.177-
11	.01-	.02-	.033-	.0306	.017	4.02-	4.02-	.0025-	.054-
7	.01-	.02-	.047-	.0300	.025	.02-	.02-	.0019-	.010-
9	.01-	.02-	.036-	.0307	.001	8.00	8.00	.0009-	.090
10	.01-	.01-	.010-	.0272	.031-	12.01	12.01	.0010-	.147
12	.01-	.01-	.021-	.0271	.005-	8.03-	8.03-	.0026-	.113-
13	.01-	.02-	.040-	.0316	.024	2.01	2.01	.0024-	.015
14	.01-	.02-	.044-	.0307	.027	2.02-	2.02-	.0020-	.028-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	C_L	C_D	STAB		STAB		DATE	TIME
					C_m	ψ_t	ψ	C_n		
2	.01-	.01-	.008	.0229	.047-	12.02-	12.02-	.0209	.0029-	.179-
3	.01-	.01-	.009-	.0298	.013-	8.02-	8.02-	.0134	.0010-	.115-
4	.01-	.01-	.028-	.0326	.013	4.01-	4.01-	.0051	.0012-	.052-
6	.01-	.02-	.035-	.0327	.022	.00	.00	.0026	.0021-	.008-
7	.01-	.02-	.043-	.0337	.020	4.00	4.00	.0026-	.0017-	.040
8	.01-	.01-	.028-	.0337	.002-	8.00	8.00	.0093-	.0009-	.085
9	.01-	.01-	.006-	.0270	.033-	12.01	12.01	.0165-	.0012-	.152

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_L	α	FORCE AXES				STAB		TEST		DATE	
			C_D	C_M	ψ_L	ψ	C_n	C_A	RUN	1	7/06/62	120.
2	8.01	8.16	.0473	.077-	12.02-	12.02-	.0303	.0079-				
4	8.02	8.16	.0568	.009-	4.02-	4.02-	.0065	.0050-				
5	8.01	8.15	.0537	.007	.01-	.01-	.0004	.0016-				
6	8.02	8.16	.0544	.006-	4.00	4.00	.0087-	.0012				
7	8.02	8.17	.0540	.035-	8.02	8.02	.0144-	.0032				
8	8.02	8.17	.0513	.069-	12.01	12.01	.0260-	.0044				
9	8.02	8.17	.0516	.037-	8.01-	8.01-	.0184	.0065-				

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												7/06/62
			FORCE AXES		STAB				TEST		DATE	
			MOMENT AXES		STAB				RUN			
Pt	α_t	α	C_L	C_D	C_m	ψ_t	ψ	C_N	C_L	C_C		
2	8.02	8.17	.498	.0506	.078-	12.02-	12.02-	.0290	.0079-	.179-		
10	8.02	8.16	.476	.0536	.040-	8.03-	8.03-	.0173	.0063-	.117-		
4	8.02	8.16	.468	.0591	.014-	4.02-	4.02-	.0052	.0049-	.051-		
6	8.01	8.15	.457	.0545	.001-	.01-	.01-	.0005	.0013-	.003-		
7	8.02	8.16	.471	.0572	.013-	4.02	4.02	.0078-	.0014	.049		
8	8.02	8.17	.476	.0557	.035-	8.00	8.00	.0130-	.0026	.098		
9	8.02	8.17	.497	.0535	.070-	12.00	12.00	.0245-	.0043	.156		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											
Pt	α_i	α	FORCE AXES				STAB		TEST	DATE	7/06/62
			MOMENT AXES				STAB				
			C_D	C_L	C_m	ψ_z	ψ	C_n	C_x	C_y	C_z
2	.03	.02	.0257	.000	.040	12.03	12.03	.0171	.0004	.0004	.171-
3	.02	.02	.0322	.018	.012	8.01	8.01	.0110	.0010	.0010	.111-
5	.02	.03	.0349	.049	.022	.00	.00	.0029	.0021	.0021	.009-
6	.02	.03	.0365	.052	.018	4.01	4.01	.0016	.0020	.0020	.040
7	.02	.02	.0356	.031	.002	8.00	8.00	.0076	.0015	.0015	.085
8	.02	.02	.0321	.009	.034	12.00	12.00	.0144	.0016	.0016	.138
10	.02	.03	.0354	.036	.015	4.03	4.03	.0050	.0019	.0019	.052-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
Pt	FORCE AXES			STAB			TEST		DATE	
	α_f	α	C_L	C_D	C_m	ψ_f	ψ	SUM	C_L	C_D
								118-0		120-
2	8.02-	8.17-	.501-	.0628	.058	.02-	.02-	.0076-	.0006-	.007
3	4.02-	4.11-	.304-	.0390	.046	.02-	.02-	.0023	.0005-	.003-
4	.01-	.02-	.043-	.0286	.032	.02-	.02-	.0020	.0011-	.004-
5	4.00	4.06	.205	.0332	.022	.02-	.02-	.0022	.0011-	.003-
6	8.00	8.14	.467	.0516	.008	.02-	.02-	.0001-	.0017-	.000-
7	12.01	12.23	.709	.0806	.001	.02-	.02-	.0009-	.0029-	.000-
8	16.03	16.32	.950	.1313	.010-	.02-	.02-	.0005-	.0050-	.002
10	18.01	18.32	.985	.1696	.015-	.02-	.02-	.0027	.0016-	.004-
11	20.02	20.32	.956	.2364	.072-	.02-	.02-	.0007	.0017	.011-
12	8.03-	8.18-	.502-	.0715	.061	.03	.03	.0097-	.0016-	.009

LOW-SPEED WIND TUNNEL FINAL DATA SHEET									
FORCE AXES STAB									
MOMENT AXES STAB									
PT	α_L	α	C_L	C_D	C_m	ψ_s	ψ	C_n	C_z
7	4.02	4.11	.307	.0583	.047	.03	.03	.0081	.0342
9	.02	.03	.047	.0470	.031	.03	.03	.0063	.0353
11	4.00	4.06	.207	.0514	.019	.03	.03	.0039	.0353
13	8.00	8.14	.476	.0709	.007	.03	.03	.0032	.0370
15	12.00	12.23	.735	.1030	.007	.03	.03	.0015	.0401
17	16.01	16.31	.973	.1568	.014	.03	.03	.0039	.0433
19	18.01	18.33	1.031	.1996	.019	.03	.03	.0086	.0377
21	20.00	20.30	.953	.2714	.055	.03	.03	.0014	.0391
									.002

TEST 343-0
RUN 119-0

DATE 7/06/62

123

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PI	FORCE AXES				MOMENT AXES				STAB		TEST	DATE	7/66/62
	α_t	α	C_L	C_D	C_m	ψ_t	ψ	C_n	C_A	C_C			
3	4.02-	4.11-	.201-	.0561	.042	.03	.03	.0124-	.0271-	.017	343-0	1	120°
5	.00-	.01-	.053-	.0400	.032	.03	.03	.0045-	.0267-	.010	120-0		
7	4.02	4.08	.205	.0451	.020	.03	.03	.0028-	.0271-	.013			
9	8.03	8.17	.467	.0654	.006	.03	.03	.0053-	.0291-	.020			
11	12.00	12.22	.722	.0952	.006-	.03	.03	.0017-	.0314-	.020			
13	16.00	16.20	.953	.1470	.012-	.03	.03	.0048	.0341-	.012			
17	18.01	18.32	1.006	.1887	.019-	.03	.03	.0071	.0300-	.010			
19	20.00	20.30	.959	.2638	.056-	.03	.03	.0008-	.0363-	.006-			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	C_L	C_D	FORCE AXES		MOMENT AXES		STAB		TEST	DATE	7/06/62
					C_m	ψ_i	ψ	C_n	C_l	C_c			
5	4.02	4.11	.301	.0465	.047	.00	.00	.0058	.0186	.009			
7	.02	.03	.048	.0349	.034	.00	.00	.0026	.0181	.007			
9	4.03	4.09	.205	.0393	.021	.01	.01	.0013	.0184	.008			
11	8.01	8.15	.474	.0576	.008	.02	.02	.0008	.0189	.010			
15	12.01	12.23	.708	.0879	.000	.02	.02	.0005	.0214	.014			
17	16.00	16.29	.942	.1393	.007	.02	.02	.0036	.0236	.009			
19	18.01	18.32	.993	.1783	.017	.02	.02	.0045	.0224	.010			
21	20.03	20.33	.955	.2548	.034	.02	.02	.0034	.0266	.003			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
FORCE AXES			STAB			TEST			DATE	
MOMENT AXES			STAB			RUN			120.	
Pt	α_s	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C
5	4.03-	4.12-	.303-	.0420	.048	.02	.02	.0020-	.0090-	.001-
7	.60	.01-	.047-	.0314	.031	.02	.02	.0013-	.0093-	.003
9	4.01	4.07	.199	.0362	.021	.02	.02	.0008-	.0095-	.003
11	8.02	8.16	.463	.0539	.009	.02	.02	.0009-	.0102-	.004
13	12.00	12.22	.709	.0824	.001	.02	.02	.0004	.0107-	.006
15	16.01	16.30	.949	.1326	.008-	.02	.02	.0016	.0135-	.005
17	18.01	18.32	.993	.1738	.017-	.02	.02	.0025	.0107-	.002
21	20.03	20.32	.952	.2433	.074-	.02	.02	.0005	.0080-	.007-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXES				STAB				TEST	DATE
		MOMENT AXES				STAB				343-0	7/06/62
Pt	α	α_L	C_L	C_D	C_m	ψ_L	ψ	C_n	C_l	123-0	120.
5	4.03	4.12	.296	.0500	.044	.01	.01	.0100	.0083		
7	.01	.02	.043	.0306	.032	.01	.01	.0019	.0076		
9	4.00	4.06	.206	.0355	.019	.01	.01	.0009	.0078		
11	8.03	8.17	.472	.0556	.007	.01	.01	.0034	.0072		
13	12.00	12.22	.706	.0822	.001	.01	.01	.0002	.0083		
15	16.01	16.30	.941	.1307	.007	.01	.01	.0006	.0032		
17	18.00	18.31	.987	.1717	.017	.01	.01	.0004	.0120		
19	20.01	20.31	.956	.2446	.073	.01	.01	.0033	.0160		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											
PI	α_L	α	FORCE AXES					STAB		TEST	DATE
			C_L	C_D	C_m	ψ_L	ψ	C_n	C_L		
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LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	FORCE AXES			MOMENT AXES			STAB			TEST			DATE		
			C_D	C_L	C_D	C_m	ψ_s	ψ	C_n	C_f	C_r	343-0	124-1	120-	7/06/62		
3	4.02-	4.11-	.0440	.294-	.0440	.044	.01-	.01-	.0042	.0171	.009-						
5	.00-	.01-	.0341	.045-	.0341	.032	.01-	.01-	.0040	.0175	.013-						
7	4.01	4.07	.0382	.211	.0382	.019	.01-	.01-	.0021	.0167	.010-						
9	8.00	8.14	.0553	.467	.0553	.008	.01-	.01-	.0004	.0176	.011-						
13	12.00	12.22	.0846	.705	.0846	.001	.01-	.01-	.0007-	.0195	.014-						
15	16.00	16.30	.1343	.953	.1343	.006-	.01-	.01-	.0021-	.0200	.012-						
17	18.02	18.33	.1778	.999	.1778	.016-	.01-	.01-	.0028-	.0238	.015-						
19	20.01	20.31	.2474	.959	.2474	.074-	.01-	.01-	.0052-	.0287	.028-						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET														FORCE AXES		STAB		TEST 343-0		DATE 7/06/62	
														MOMENT AXES		STAB		RUN 125-0		120.	
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_N	C_L	C_C											
3	4.01-	4.10-	.298-	.0496	.042	.01-	.01-	.0068	.0264	.015-											
5	.00-	.01-	.052-	.0397	.032	.01-	.01-	.0056	.0266	.016-											
7	4.02	4.09	.210	.0435	.018	.01-	.01-	.0030	.0258	.016-											
9	8.00	8.14	.469	.0618	.006	.01-	.01-	.0011	.0269	.017-											
11	12.01	12.23	.717	.0930	.001-	.01-	.01-	.0010-	.0283	.018-											
13	16.01	16.31	.955	.1420	.010-	.01-	.01-	.0036-	.0306	.018-											
15	18.00	18.31	.995	.1836	.020-	.01-	.01-	.0041-	.0319	.019-											
17	20.00	20.30	.954	.2536	.073-	.01-	.01-	.0051-	.0416	.040-											

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AREA		STAB		TEST		DATE	
		MOMENT REES		STAB		RUN			
Pt	α	C_L	C_D	C_M	ψ_L	ψ	C_H	C_F	C_C
5	4.02	4.11	.308	.0568	.044	.01	.0097	.0364	.019
7	.01	.00	.048	.0466	.029	.01	.0073	.0355	.020
9	4.01	4.07	.207	.0498	.018	.01	.0042	.0349	.020
11	8.01	8.16	.478	.0683	.004	.01	.0009	.0351	.019
13	12.01	12.23	.714	.0970	.002	.01	.0016	.0369	.023
15	16.01	16.31	.958	.1491	.012	.01	.0052	.0389	.020
17	18.00	18.31	1.004	.1952	.023	.01	.0058	.0365	.021
23	20.01	20.31	.979	.2773	.068	.01	.0018	.0469	.043
25	18.00	18.31	1.013	.1957	.024	.01	.0059	.0300	.024

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_f	α	FORCE AXES			STAB			ψ	TEST			DATE
			C_D	C_L	C_M	C_{Df}	C_{Lf}	C_{Mf}		NUM	343-0	7/06/62	
										127-1	1	120.	
3	8.02-	8.12-	.0857	.332-	.021	.02	.02	.02	.02	.0104	.0395	.013-	
5	4.02-	4.03-	.0680	.045-	.001-	.02	.02	.02	.02	.0102	.0395	.025-	
7	.01-	.06	.0721	.237	.023-	.02	.02	.02	.02	.0073	.0378	.019-	
9	4.01	4.17	.0931	.511	.039-	.02	.02	.02	.02	.0056	.0384	.022-	
11	8.00	8.24	.1302	.793	.051-	.02	.02	.02	.02	.0027	.0291	.024-	
15	12.01	12.34	.1891	1.069	.058-	.02	.02	.02	.02	.0009-	.0350	.024-	
17	16.00	16.40	.2591	1.271	.052-	.02	.02	.02	.02	.0054-	.0411	.019-	
19	17.01	17.42	.2513	1.312	.048-	.02	.02	.02	.02	.0052-	.0394	.019-	
21	18.02	18.44	.3042	1.334	.047-	.02	.02	.02	.02	.0073-	.0369	.015-	
23	20.02	20.37	.2912	1.137	.070-	.02	.02	.02	.02	.0006-	.0138	.012-	
25	19.01	19.39	.3785	1.231	.065-	.02	.02	.02	.02	.0047-	.0260	.022-	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											FORCE AXES	STAB	TEST	343-0	DATE	7/05/62	
											MOMENT AXES	STAB	JUN	123-1			120.
Pt	α	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_l	C_c							
33	8.01-	8.11-	.319-	.0708	.023	.02	.02	.0009	.0223	.003-							
35	4.02-	4.03-	.037-	.0546	.002-	.02	.02	.0046	.0198	.012-							
37	.02-	.05	.237	.0594	.023-	.02	.02	.0038	.0190	.010-							
39	4.00	4.17	.542	.0813	.042-	.02	.02	.0034	.0190	.012-							
41	8.01	8.25	.789	.1176	.050-	.02	.02	.0018	.0205	.013-							
43	12.01	12.34	1.065	.1716	.056-	.02	.02	.0005-	.0203	.012-							
45	16.01	16.41	1.271	.2442	.048-	.02	.02	.0017-	.0211	.014-							
49	18.02	18.43	1.309	.3144	.053-	.02	.02	.0009	.0337	.039-							
51	20.00	20.36	1.219	.3945	.081-	.02	.02	.0013-	.0210	.050-							

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	FORCE AXES				STAB		ψ	REV	DATE	7/06/62
			C_L	C_D	C_M	C_{L_i}	STAB	C_n				
7	8.02-	8.13-	.325-	.0625	.019	.02		.0004	.0001			
9	4.02-	4.02-	.021-	.0483	.001	.02		.0009-	.0010-			
11	.03-	.04	.242	.0356	.022-	.02		.0001-	.0016-			
13	4.01	4.17	.516	.0772	.035-	.02		.0009	.0016-			
15	8.00	8.25	.802	.1146	.049-	.02		.0002	.0016-			
17	12.01	12.34	1.071	.1661	.054-	.02		.0000-	.0032-			
19	16.01	16.41	1.281	.2422	.048-	.02		.0008	.0025-			
21	18.03	18.43	1.296	.3115	.050-	.02		.0045	.0136			
23	20.01	20.40	1.241	.3996	.092-	.02		.0019	.0009			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	FORCE AXES				MOMENT AXES				STAG				TEST	343-0	DAY	7/06/62
			C_L	C_D	C_m	ψ_L	ψ	C_n	C_l	C_c	C_L	C_D	C_m	ψ_L	ψ	C_n	C_l	C_c
7	8.03	8.12	.266	.0702	.013	.02	.02	.0087	.0229	.005								
11	4.01	4.01	.028	.0549	.000	.02	.02	.0059	.0210	.009								
15	4.01	4.17	.517	.0815	.038	.02	.02	.0024	.0226	.010								
17	8.03	8.27	.788	.1179	.050	.02	.02	.0016	.0241	.014								
19	12.02	12.35	1.073	.1735	.056	.02	.02	.0007	.0274	.016								
21	16.01	16.41	1.275	.2471	.049	.02	.02	.0030	.0261	.012								
23	18.01	18.42	1.331	.2893	.047	.02	.02	.0050	.0230	.003								
25	20.02	20.40	1.224	.4051	.076	.02	.02	.0081	.0141	.010								
27	.02	.05	.244	.0609	.024	.02	.02	.0041	.0216	.009								

7/06/62

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FORCE APTS	STAB	TEST	DATE
		343-0	7/06/62
MOMENT APTS	STAB	131-0	120.

FORCE APTS	STAB	TEST	DATE
		343-0	7/06/62
MOMENT APTS	STAB	131-0	120.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AREAS										TEST	343-0	DATE	8/17/62
MOMENT AREAS										RUN	132-2	1	120.
Pt	α_L	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_I	C_C			
3	8.00-	8.05-	.175-	.0989	.005-	.00	.00-	.0125-	.0397-	.012			
5	4.02-	4.00-	.092	.0933	.024-	.00	.00-	.0106-	.0412-	.012			
7	.00-	.11	.372	.1030	.047-	.00	.00-	.0091-	.0416-	.023			
9	4.00	4.20	.644	.1290	.064-	.00	.00-	.0058-	.0416-	.023			
11	8.01	8.30	.924	.1757	.074-	.00	.00-	.0038-	.0435-	.026			
13	12.01	12.38	1.181	.2356	.075-	.00	.00-	.0002-	.0461-	.026			
15	16.01	16.45	1.403	.3315	.066-	.00	.00-	.0067	.0455-	.014			
19	18.00	18.42	1.347	.4133	.062-	.00	.00-	.0084	.0312-	.005			
23	20.01	20.40	1.244	.4629	.078-	.00-	.00	.0104	.0233-	.001-			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXES			STAB			TEST			DATE	
		MOMENT AXES			STAB			NO.				
Pt	α_L	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_f	C_c		
2	4.01-	4.10-	.300-	.0415	.049	.02	.02	.0006-	.0009-	.001-		
3	.00-	.01-	.055-	.0316	.029	.02	.02	.0002	.0009-	.002-		
4	4.01	4.07	.191	.0355	.021	.02	.02	.0003	.0009-	.001-		
5	8.01	8.15	.453	.0531	.010	.02	.02	.0000-	.0011-	.000-		
6	12.00	12.22	.705	.0837	.001-	.02	.02	.0001-	.0024-	.000		
7	16.00	16.29	.922	.1354	.009-	.02	.02	.0003	.0027-	.001-		
8	18.00	18.31	.987	.1743	.017-	.02	.02	.0009	.0010	.005-		
9	20.00	20.30	.959	.2492	.057-	.02	.02	.0046-	.0006-	.000-		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
FORCE AXES			STAB			TEST			DATE	
MOMENT AXES			STAB			RUN			1	
Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_l	C_c
2	.01	.01	.012-	.0233	.033-	12.01-	12.01-	.0220	.0050-	.180-
3	.01	.00	.035-	.0280	.007-	8.00-	8.00-	.0157	.0042-	.123-
4	.01	.00	.043-	.0334	.018	4.01-	4.01-	.0056	.0024-	.055-
5	.01	.00	.055-	.0327	.029	.00-	.00	.0005	.0017-	.006-
6	.01	.01	.066-	.0324	.027	4.03	4.03	.0078-	.0008	.050
8	.01	.00	.045-	.0290	.003	8.01	8.01	.0144-	.0014	.104
9	.01	.01	.018-	.0267	.031-	12.01	12.01	.0191-	.0001	.158

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	MOCH AXIS		STAB		TEST		DATE	
	α_L	α	C_L	C_D	MOMENT AXIS	STAB	C_m	C_n
					ψ_L	ψ		
5	8.01	8.16	.485	.0479	.067-	12.03-	.0322	.0093-
12	8.02	8.16	.461	.0498	.033-	8.01-	.0198	.0082-
7	8.02	8.16	.460	.0576	.008-	4.03-	.0052	.0068-
8	8.02	8.16	.454	.0539	.009	.02-	.0003-	.0016-
9	8.02	8.16	.453	.0529	.001	4.02	.0117-	.0015
10	8.02	8.16	.457	.0488	.024-	8.01	.0192-	.0034
11	8.02	8.17	.484	.0480	.001-	12.00	.0267-	.0036

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
		FORCE AXES			STAB					
		MOMENT AXES			STAB					
Pt	α_t	α	C_L	C_D	C_m	ψ_t	ψ	C_n	C_L	C_C
5	8.01-	8.07-	.196-	.0834	.001-	.00-	.00-	.0045-	.0005-	.000
13	4.01-	3.99-	.069	.0784	.023-	.00-	.00-	.0030-	.0014-	.002
15	.01-	.10	.365	.0881	.045-	.00-	.00	.0005-	.0021-	.000-
17	4.00	4.19	.633	.1151	.059-	.00-	.00-	.0006-	.0024-	.001
19	8.01	8.29	.914	.1603	.069-	.00-	.00-	.0015-	.0040-	.005
21	12.00	12.36	1.163	.2210	.072-	.00-	.00-	.0010-	.0045-	.004
23	16.03	16.47	1.406	.3087	.062-	.00	.00	.0002	.0029-	.003-
25	18.00	18.43	1.372	.4002	.063-	.00-	.00	.0012	.0002	.013-
27	20.00	20.40	1.288	.4569	.075-	.00-	.00	.0026	.0030-	.009-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET														
FORCE AXES														
MOMENT AXES														
STAB														
STAB														
PT	α_2	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C	TEST	343-0	DATE	7/UC/02
5	4.01-	3.98-	.100	.0800	.024-	.00-	.00-	.0063-	.0222-	.002				
7	.01-	.10	.378	.0907	.047-	.00-	.00-	.0056-	.0217-	.010				
9	4.02	4.22	.646	.1171	.053-	.00-	.00-	.0041-	.0228-	.015				
11	8.02	8.31	.939	.1647	.073-	.00-	.00-	.0035-	.0265-	.018				
13	12.02	12.38	1.173	.2232	.073-	.00-	.00-	.0013-	.0275-	.019				
15	16.01	16.45	1.403	.3120	.060-	.00-	.00-	.0025	.0249-	.005				
17	18.01	18.43	1.354	.4033	.062-	.00-	.00-	.0048	.0197-	.000-				
19	20.02	20.42	1.284	.4601	.086-	.00-	.00	.0056	.0169-	.004-				

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET														
Pt	α_i	α	FORCE AREAS				MOMENT AREAS				TEST RUN	DATE	7/06/62	120°
			C_L	C_D	C_m	ψ_2	ψ	C_n	C_f	C_c				
5	8.03	8.08	.190	.0888	.003	.00	.00	.0013	.0224	.003				
7	4.02	4.00	.086	.0789	.022	.00	.00	.0052	.0213	.026				
23	.00	.11	.263	.0900	.046	.00	.00	.0044	.0191	.011				
11	4.01	4.21	.636	.1142	.059	.00	.00	.0037	.0194	.011				
13	8.03	8.31	.919	.1596	.066	.00	.00	.0013	.0199	.009				
15	12.00	12.36	1.171	.2201	.070	.00	.00	.0000	.0203	.012				
17	16.01	16.45	1.407	.3112	.060	.00	.00	.0011	.0230	.016				
19	18.00	18.42	1.362	.4061	.064	.00	.00	.0021	.0172	.021				
21	20.01	20.41	1.286	.4570	.083	.00	.00	.0017	.0167	.030				

Runs 139 to 158, inclusive, and 160 to 169, inclusive;
no force and moment data were recorded.

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AREA										STAB		TUT		DATE	
MOMENT AREA										STAB		SUM		1	
Pt	α_t	α	C_L	C_D	C_M	ψ_L	ψ	C_H	C_I	343-0		159-0		7/06/62	
														120.	
23	.01-	.01-	.001	.0194	.035	12.01-	12.01-	.0249	.0063-					.181-	
25	.01-	.01-	.009	.0213	.021	10.01-	10.01-	.0210	.0055-					.145-	
27	.01-	.01-	.013	.0248	.006	8.00-	8.00-	.0166	.0036-					.118-	
29	.00-	.00	.026	.0260	.010	6.02-	6.02-	.0141	.0029-					.095-	
31	.00-	.01-	.034	.0285	.022	4.00-	4.00-	.0090	.0020-					.052-	
33	.00-	.01-	.039	.0294	.030	2.02-	2.02-	.0040	.0023-					.031-	
35	.00-	.01-	.048	.0292	.033	.00-	.00-	.0010-	.0010-					.001-	
37	.00-	.01-	.054	.0294	.032	2.01	2.01	.0056-	.0001					.025	
39	.00-	.01-	.055	.0293	.030	4.00	4.00	.0091-	.0007					.052	
41	.00-	.01-	.047	.0281	.019	6.03	6.03	.0106-	.0009					.076	
43	.00-	.01-	.035	.0262	.006	8.02	8.02	.0154-	.0005					.107	
45	.00-	.00	.010	.0233	.028	12.01	12.01	.0224-	.0012					.163	
47	.00-	.01-	.032	.0285	.015	6.01	6.01	.0104-	.0002-					.073	
49	.00-	.01-	.029	.0291	.025	4.00	4.00	.0056-	.0003-					.022	
51	.00-	.00	.021	.0247	.000	8.02-	8.02-	.0178	.0022-					.119-	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												
PT	FORCE AXIS				STAB				TEST		DATE	
	α_L	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_f	C_c	170-0	120-
3	8.02-	8.07-	.186-	.1015	.017-	.01	.01	.0131	.0373	.026-	343-0	7/06/62
5	4.02-	3.99-	.096	.0956	.039-	.01	.01	.0137	.0409	.059-	170-0	
7	.00-	.11	.376	.1069	.060-	.01	.01	.0101	.0394	.032-		
9	4.01	4.21	.636	.1300	.069-	.01	.01	.0024	.0402	.016-		
11	8.01	8.29	.916	.1731	.077-	.01	.01	.0011-	.0389	.017-		
13	12.00	12.36	1.162	.2329	.076-	.01	.01	.0032-	.0378	.014-		
15	16.01	16.45	1.399	.3271	.068-	.01	.01	.0073-	.0423	.015-		
17	18.02	18.45	1.381	.3973	.059-	.01	.01	.0083-	.0200	.004		
19	20.02	20.42	1.273	.4573	.083-	.01	.01	.0014-	.0157	.007-		
21	4.01-	3.98-	.103	.0962	.039-	.01	.01	.0129	.0413	.053-		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_f	α	FORCE AXES				STAB		MOMENT AXES				ψ	TEST RUN			DATE	7/06/62
			C_L	C_D	C_M	ψ_L	C_N	ψ	C_L	C_D	C_M	ψ		343-0	171-1	120°		
3	.00	.13	.417	.0936	.149-	12.01-	.0461	12.01-	.0324	.0461	.0078	.00						
5	.00	.12	.389	.0996	.101-	8.03-	.0290	8.03-	.0339	.0290	.0091	.00						
7	.00	.11	.374	.1074	.069-	4.01-	.0091	4.01-	.0364	.1074	.0078	.00						
11	.00	.11	.374	.1074	.064-	.00-	.0078	.00-	.0391	.1074	.0078	.00						
13	.00	.11	.380	.1061	.061-	4.02	.0003	4.02	.0407	.1061	.0003	.00						
15	.00	.12	.399	.1019	.083-	8.02	.0141-	8.02	.0441	.1019	.0141-	.00						
17	.00	.13	.419	.1005	.122-	12.01	.0286-	12.01	.0460	.1005	.0286-	.00						
19	.00	.11	.373	.1043	.072-	4.02-	.0164	4.02-	.0368	.1043	.0164	.00						
21	.00	.12	.389	.0982	.106-	3.03-	.0313	3.03-	.0339	.0982	.0313	.00						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												FORCE AXES		STAB		MOMENT AXES		STAB		TEST	DATE
PI	α_f	α	C_L	C_D	C_M	ψ_f	ψ	C_N	C_L	C_C											
5	16.01	16.44	1.375	.3478	.129-	8.04-	8.04-	.0211	.0127	.139-									7/06/62		
7	16.01	16.44	1.389	.3504	.184-	12.02-	12.02-	.0317	.0097	.202-											
9	16.01	16.44	1.367	.3444	.126-	8.00-	8.00-	.0209	.0126	.137-											
11	16.01	16.44	1.396	.3366	.084-	4.01-	4.01-	.0044	.0263	.077-											
13	16.01	16.43	1.406	.3317	.067-	.01	.01	.0097-	.0416	.011-											
15	16.01	16.45	1.408	.3315	.071-	4.02	4.02	.0211-	.0515	.047											
17	16.01	16.44	1.389	.3313	.104-	8.01	8.01	.0346-	.0600	.107											
19	16.01	16.44	1.394	.3361	.153-	12.01	12.01	.0445-	.0612	.170											
21	16.01	16.43	1.362	.3463	.129-	8.01-	8.01-	.0217	.0148	.136-											
23	16.01	16.44	1.379	.3449	.134-	12.02-	12.02-	.0320	.0096	.208-											

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
			PORT AIRS		STAB		TEST		DATE	
			MOMENT AIRS		STA 3		343-0		7/06/62	
Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_f	C_c
5	16.01	16.44	1.380	.3476	.163-	12.00-	12.00-	.0454	.0721-	.173-
7	16.01	16.44	1.384	.3445	.111-	3.01-	3.01-	.0324	.0578-	.104-
9	16.01	16.45	1.417	.3301	.075-	4.00-	4.00-	.0248	.0540-	.061-
11	16.01	16.45	1.407	.3334	.071-	.00	.00-	.0083	.0469-	.010
13	16.01	16.45	1.408	.3350	.084-	4.02	4.02	.0115-	.0389-	.086
15	16.01	16.45	1.403	.3440	.128-	6.02	6.02	.0220-	.0301-	.146
19	16.01	16.44	1.389	.3445	.179-	12.01	12.01	.0328-	.0197-	.202
21	16.01	16.45	1.410	.3328	.072-	.01	.01	.0132	.0467-	.008
23	16.02	16.46	1.418	.3304	.074-	4.02-	4.02-	.0259	.0532-	.062-
25	16.01	16.45	1.415	.3288	.074-	4.02-	4.02-	.0258	.0535-	.064-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													
Pt	α_t	α	PORT AXES				STAB				TEST	DATE	
			C_L	C_D	C_m	ψ_L	ψ	C_m	ψ	C_L			C_D
			MOMENT AXES				STAB						
3	.01	.14	.425	.0988	.124	12.03	12.03	.0296	.0500	.196	120,	8/17/62	
5	.01	.13	.399	.1013	.083	8.00	8.00	.0136	.0474	.118			
9	.01	.13	.387	.1045	.061	4.02	4.02	.0006	.0442	.046			
11	.01	.12	.376	.1064	.062	.00	.00	.0085	.0414	.007			
13	.01	.13	.388	.1080	.072	4.02	4.02	.0172	.0399	.076			
15	.01	.13	.403	.1046	.103	8.02	8.02	.0297	.0378	.136			
17	.01	.14	.424	.1015	.148	12.00	12.00	.0442	.0349	.204			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
FORCE AXES			STAB			TEST			DATE	
MOMENT AXES			STAB			RUN			120.	
Pt	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_f	C_c	
3	.01	.005-	.0384	.024-	12.02-	12.02-	.0149	.0368-	.160-	
5	.01	.025-	.0443	.005	8.02-	8.02-	.0079	.0359-	.100-	
7	.00	.045-	.0477	.024	4.02-	4.02-	.0006	.0348-	.044-	
9	.00	.047-	.0487	.022	.00	.00-	.0070-	.0344-	.005	
11	.00	.041-	.0480	.016	4.01	4.01	.0098-	.0367-	.057	
13	.01	.021-	.0458	.013-	6.02	6.02	.0176-	.0369-	.110	
15	.01	.003	.0412	.047-	12.00	12.00	.0250-	.0376-	.169	
17	.00	.038-	.0481	.015	4.02	4.02	.0099-	.0381-	.057	
19	.00	.041-	.0484	.021	.00	.00-	.0063-	.0359-	.008	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												7/06/62
FORCE AXIS												DATE
MOMENT AXIS												
Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_l	C_c		
3	16.01	16.31	.975	.1495	.083	12.03	12.03	.0037	.0491	.178		
5	16.01	16.31	.964	.1612	.054	8.02	8.02	.0180	.0392	.092	120.	
7	16.01	16.31	.953	.1620	.034	4.02	4.02	.0076	.0326	.034		
11	16.01	16.31	.964	.1574	.021	.02	.02	.0001	.0455	.015		
13	16.01	16.31	.970	.1526	.026	4.03	4.03	.0050	.0400	.075		
15	16.01	16.31	.964	.1567	.058	6.00	6.00	.0118	.0347	.128		
17	16.01	16.31	.975	.1574	.091	12.00	12.00	.0277	.0329	.192		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	FORCE AXES			MOMENT AXES			STAB			TEST			DATE		
			C_L	C_D	C_m	ψ_L	ψ	C_n	C_z	C_c	C_p	STAB	STAB	STAB	TEST	TEST	TEST
3	16.01	16.31	.959	.1338	.082-	12.02-	12.02-	.0411	.0351-	.174-					343-0	7/06/62	
5	16.01	16.30	.942	.1330	.040-	0.01-	8.01-	.0311	.0338-	.115-					177-0	q	120.
7	16.01	16.30	.931	.1390	.026-	4.00-	4.00-	.0104	.0332-	.041-							
9	16.01	16.30	.949	.1372	.014-	.00-	.00-	.0025	.0278-	.013							
11	16.01	16.31	.955	.1324	.019-	4.00	4.00	.0095-	.0224-	.071							
15	16.01	16.31	.953	.1374	.049-	6.01	9.01	.0188-	.0165-	.123							
17	16.01	16.31	.964	.1376	.079-	12.01	12.01	.0324-	.0143-	.188							

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AREAS										TEST	DATE
MOMENT AREAS										343-0	7/06/62
STAB										178-0	120°
Pt	α_t	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C	
3	.01	.01	.001	.0229	.029	12.02	12.02	.0175	.0202	.179	
5	.01	.01	.022	.0321	.002	8.02	8.02	.0112	.0207	.109	
9	.01	.00	.036	.0354	.019	4.01	4.01	.0036	.0200	.048	
11	.01	.00	.045	.0360	.023	.01	.01	.0052	.0175	.006	
13	.01	.00	.047	.0369	.022	4.00	4.00	.0062	.0197	.044	
15	.01	.01	.025	.0345	.004	8.02	8.02	.0135	.0192	.094	
17	.01	.01	.003	.0301	.036	12.01	12.01	.0203	.0190	.156	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET									
		FORCE AXES		STAB		TEST		DATE	
		MOMENT AXES		STAB		NO.			
Pt	α	C_L	C_D	C_M	ψ	ψ	C_N	C_L	C_C
5	.01	.007	.0211	.036-	12.01-	12.01-	.0202	.0038-	.176-
7	.01	.015-	.0279	.007-	8.02-	8.02-	.0138	.0029-	.115-
9	.02	.026-	.0306	.017	4.02-	4.02-	.0064	.0023-	.050-
11	.01	.031-	.0308	.023	.01-	.01-	.0027-	.0002-	.001-
13	.02	.036-	.0323	.023	4.02	4.02	.0029-	.0023-	.042
15	.01	.030-	.0305	.002	8.00	8.00	.0107-	.0016-	.097
17	.01	.004-	.0267	.028-	12.00	12.00	.0167-	.0012-	.150
19	.01	.034-	.0325	.019	4.00	4.00	.0027-	.0033-	.042
21	.01	.037-	.0321	.024	.00	.00	.0021-	.0016-	.001

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	FORCE AXES				STAR				TEST		DATE	
	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_f	C_c		
5	.01	.01	.002-	.0251	.042-	12.02-	12.02-	.0235	.0140	.167-		7/06/62
7	.00	.00	.019-	.0336	.011-	8.01-	8.01-	.0148	.0155	.119-		120.
9	.00	.01	.025-	.0338	.016	4.00-	4.00-	.0100	.0161	.279-		
11	.00	.01	.038-	.0354	.023	.00	.00	.0004-	.0174	.005-		
13	.00	.01	.041-	.0369	.024	4.02	4.02	.0000	.0134	.034		
15	.00	.00	.031-	.0348	.006	8.01	8.01	.0079-	.0165	.090		
17	.00	.00	.013-	.0302	.020	12.00	12.00	.0144-	.0159	.150		
19	.00	.00	.028-	.0298	.010	8.01-	8.01-	.0174	.0137	.136-		

POKE AXIS	STAB	TEST	343-0	DATE	7/06/62
MOMENT AXIS	STAB	TEST	181-0		120.

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LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES STAB TEST 343-0 DATE 7/06/62
 MOMENT AXES STAB 132-0

Pt	α_L	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_f	C_c
5	16.00	16.30	.969	.1529	.026	12.02	12.02	.0308	.0275	.205
7	16.00	16.30	.959	.1593	.070	6.02	6.02	.0016	.0232	.120
9	16.01	16.30	.951	.1577	.038	4.02	4.02	.0042	.0276	.066
11	16.03	16.32	.938	.1549	.014	.02	.02	.0056	.0379	.021
13	16.03	16.33	.954	.1567	.015	4.02	4.02	.0190	.0445	.040
15	16.03	16.33	.956	.1510	.036	8.01	8.01	.0292	.0466	.095
17	16.03	16.33	.966	.1511	.072	12.01	12.01	.0185	.0470	.152
19	16.03	16.33	.958	.1506	.061	3.01	3.01	.0178	.0299	.144
21	16.03	16.33	.969	.1584	.068	8.01	8.01	.0073	.0252	.126
23	16.01	16.02	.051	.0073	.01	12.02	12.02	.0001	.0001	.002
27	16.01	16.31	.963	.1526	.0	12.01	12.01	.0307	.0279	.207
29	16.01	16.31	.960	.1512	.081	10.01	10.01	.0217	.0288	.170
31	16.01	16.30	.951	.1498	.060	8.00	8.00	.0177	.0302	.141
33	16.01	16.31	.959	.1535	.044	6.01	6.01	.0065	.0292	.103
35	16.01	16.30	.952	.1326	.029	4.02	4.02	.0039	.0316	.075
37	16.01	16.30	.941	.1556	.021	2.00	2.00	.0002	.0352	.048
39	16.01	16.30	.939	.1361	.014	.02	.02	.0065	.0380	.019
41	16.01	16.30	.940	.1510	.026	4.01	4.01	.0074	.0323	.079
43	16.01	16.30	.946	.1564	.031	4.01	4.01	.0033	.0313	.076

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET															
		FORCE AXES		STAB				MOMENT AXES		STAB		WIND		DATE	
												243-0		7/06/62	
												103-C		120.	
Pt	α_g	α	C_L	C_D	C_m	ψ_L	ψ	C_N	C_L	C_C					
3	8.01	8.16	.503	.0440	.068-	12.02-	12.02-	.0201	.0078-	.192-					
5	8.00	8.15	.480	.0530	.034-	8.02-	6.02-	.0123	.0081-	.109-					
7	8.01	8.16	.476	.0521	.003-	4.01-	4.01-	.0108	.0057-	.061-					
9	8.00	8.15	.479	.0532	.004	.02-	.02-	.0017-	.0019-	.002					
11	8.02	8.16	.475	.0525	.007-	4.02	4.02	.0107-	.0009	.057					
13	8.02	8.17	.483	.0506	.031-	6.00	8.00	.0161-	.0027	.107					
15	8.02	8.17	.502	.0489	.067-	12.01	12.01	.0269-	.0036	.171					
17	8.02	8.16	.475	.0534	.000	2.02-	2.02-	.0046	.0025-	.029-					
19	8.02	8.16	.475	.0485	.011-	6.00-	6.00-	.0186	.0076-	.094-					
21	8.01	8.16	.481	.0483	.031-	8.02-	8.02-	.0183	.0074-	.119-					
23	8.00	8.15	.491	.0476	.051-	10.00-	10.00-	.0239	.0082-	.151-					
25	8.02	8.17	.476	.0493	.022-	7.02-	7.02-	.0177	.0075-	.103-					

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												FORCE COEFF	STAB		REF	343-0	DATE	7/26/62			
												MOMENT COEFF		STAB							
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_l	C_c											
3	8.02	8.18	.508	.0459	.071	12.02	12.02	.0312	.0061	.187											
5	3.02	8.17	.494	.0474	.052	10.01	10.01	.0228	.0069	.150											
7	3.02	8.17	.485	.0485	.034	8.02	8.02	.0185	.0064	.119											
9	3.02	8.17	.482	.0485	.015	6.02	6.02	.0162	.0072	.094											
11	3.02	8.16	.475	.0508	.003	4.01	4.01	.0124	.0053	.062											
13	8.02	8.16	.468	.0527	.001	2.06	2.06	.0040	.0028	.029											
15	8.01	8.15	.472	.0531	.004	.00	.00	.0012	.0019	.000											
17	3.02	8.16	.476	.0534	.001	2.00	2.00	.0030	.0010	.025											
19	3.02	8.17	.481	.0528	.003	4.01	4.01	.0102	.0009	.054											
21	3.02	8.16	.473	.0526	.014	5.01	5.01	.0130	.0020	.076											
23	3.02	8.17	.485	.0512	.032	6.02	6.02	.0158	.0026	.107											
25	3.01	8.16	.489	.0506	.050	10.01	10.01	.0201	.0031	.136											
27	8.01	8.16	.501	.0493	.065	12.02	12.02	.0268	.0035	.171											
29	8.02	8.16	.473	.0542	.003	2.02	2.02	.0018	.0019	.024											
31	3.02	8.17	.483	.0492	.033	6.00	6.00	.0191	.0077	.121											
33	3.02	8.17	.481	.0496	.023	7.02	7.02	.0176	.0075	.104											

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
FORCE AXES		STAB		TEST 343-0		DATE 7/26/62				
MOMENT AXES		STAB		NOV 134-0						
Pt	α_L	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C
3	8.01	8.16	.500	.0433	.066-	12.03-	12.03-	.0328	.0091-	.199-
5	8.02	8.17	.488	.0445	.051-	10.02-	10.02-	.0262	.0072-	.165-
7	8.02	8.17	.477	.0449	.028-	8.02-	8.02-	.0225	.0082-	.124-
9	8.02	8.17	.478	.0489	.015-	6.02-	6.02-	.0161	.0065-	.080-
11	8.02	8.16	.467	.0502	.001-	4.00-	4.00-	.0121	.0053-	.061-
13	8.02	8.16	.467	.0510	.006	2.02-	2.02-	.0061	.0036-	.033-
21	8.02	8.16	.475	.0528	.006	2.02	2.02	.0061-	.0006-	.029
23	8.02	8.16	.472	.0514	.001-	4.01	4.01	.0108-	.0008	.055
25	8.02	8.16	.476	.0497	.012-	6.01	6.01	.0145-	.0015	.084
27	8.02	8.17	.484	.0498	.031-	8.02	8.02	.0174-	.0028	.110
29	8.02	8.17	.494	.0481	.048-	10.02	10.02	.0242-	.0038	.144
31	8.02	8.17	.504	.0481	.065-	12.01	12.01	.0293-	.0039	.175

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												
			EDGE AREAS		STAS				TEST 243-0		DATE 7/06/52	
			MOMENT AREAS		STAS				RUM 135-C		120.	
Pt	α_i	α	C_L	C_D	C_M	ψ_z	ψ	C_n	C_l	C_c		
3	8.02	8.17	.503	.0452	.068-	12.02-	12.02-	.0235	.0084-	.177-		
5	8.01	8.16	.460	.0462	.028-	8.02-	8.02-	.0124	.0066-	.108-		
7	8.01	8.15	.474	.0513	.002-	4.02-	4.02-	.0027	.0038-	.049-		
9	8.00	8.14	.469	.0530	.007	.00	.00-	.0116-	.0000-	.015		
11	8.01	8.15	.469	.0524	.002-	4.02	4.02	.0229-	.0025	.075		
13	8.01	8.16	.481	.0498	.029-	3.01	3.01	.0318-	.0049	.129		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

POWER AXIS STAB TEST 343-0 DATE 7/06/62
MOMENT AXIS STAB RUN 100-0

Pt	α_f	α	C_L	C_D	C_M	ψ_L	ψ	C_n	C_L	C_C
5	8.01	8.16	.478	.0467	.066-	12.02-	12.02-	.0172	.0076-	.171-
7	8.00	8.15	.477	.0487	.029-	8.02-	8.02-	.0043	.0061-	.097-
9	8.01	8.15	.470	.0540	.002-	4.02-	4.02-	.0007-	.0031-	.026-
11	8.00	8.14	.468	.0558	.000	.02-	.02-	.0222-	.0009	.025
13	8.02	8.16	.475	.0546	.003-	4.01	4.01	.0345-	.0034	.060
15	8.01	8.16	.483	.0511	.029-	8.00	8.00	.0469-	.0061	.150
17	8.01	8.16	.500	.0531	.068-	12.00	12.00	.0549-	.0066	.203

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α	FORCE AXES				STAS		TEST		DATE	
		MOMENT AXES				STAB		DEM			
		C_L	C_D	C_M	ψ_L	ψ	C_0	C_L	C_D		
3	8.01	8.16	.505	.0490	12.02	12.02	.0132	.0070	.162		7/06/62
5	8.01	8.16	.481	.0498	8.02	8.02	.0016	.0058	.095		
7	8.01	8.15	.471	.0554	4.01	4.01	.0102	.0027	.031		
9	8.00	8.14	.471	.0572	.01	.01	.0274	.0010	.035		
11	8.02	8.16	.471	.0561	4.01	4.01	.0390	.0070	.097		
13	8.01	8.15	.482	.0546	8.01	8.01	.0021	.0069	.152		
15	8.02	8.17	.502	.0553	12.01	12.01	.0215	.0070	.209		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													
FORCE AXES STAB													
MOMENT AXES STAB													
Pt	α_T	α	C_L	C_D	C_m	ψ_L	ψ	C_H	C_A	C_C	TEST	343-0	DATE
5	.00-	.00	.014-	.0377	.005-	6.03-	6.03-	.0152	.0036-	.116-	120.		7/06/62
7	.00-	.01-	.034-	.0405	.023	4.02-	4.02-	.0089	.0020-	.071-			
9	.00	.01-	.028-	.0413	.023	.01	.01	.0011	.0020-	.000-			
11	.00-	.01-	.045-	.0425	.031	4.00	4.00	.0047-	.0011-	.042			
13	.00-	.00	.031-	.0407	.003	6.00	6.00	.0105-	.0002-	.039			
15	.00-	.00	.003-	.0361	.025-	12.02	12.02	.0202-	.0004	.155			
17	.00-	.00	.024-	.0404	.006	6.00	6.00	.0107-	.0010-	.094			

MODEL CONDITION			Good			PREVIOUS TESTS			CVAL 343		
BAYONETS						WINDSHIELDS			Power Off St'd		
TRUNNION SPACING			None			BOOM TAIL LENGTH			42.27"		
RYAN MODEL 143 (VERTIFAN) 1/8-SCALE CONVENTIONAL MODEL $\delta_a = \delta_e = \delta_r = 0^\circ$ for the entire test											
DATE	RUN	CONFIGURATION	TEST	q_m	α_g°	ψ_g°	δ_f°			Set M_δ 's	FIGURE NO.
8-21	1	3WFS _{WV} M ₃ 20411	Y ₆	29.1	0	A**	0			Rot presented	
	1-1	"	"	"	"	"	"			3.51, 3.53, 3.55	
	2	"	"	"	-4	"	"			3.51	
	3	"	"	"	4	"	"			3.51	
	4	"	"	"	8	"	"			3.51, 3.53	
	5	"	"	"	16	"	"			3.51, 3.53	
	6	"	"	"	-2	"	"			3.51	
	7	"	P ₆	"	A***	0	"			3.39, 3.42, 3.47	
	8	"	Y ₆	"	2	A	"			3.51	
8-22	9	"	"	"	12	"	"			3.51	
	10	"	"	"	0	-A	"			3.42	
REMARKS Run 1: Static tare before run " : Zero shift in M, R & L * q_m set with manometer containing alcohol, Sp. Gr. = .785 29.1" Alcohol = 118.3 $q_m = 120q$ Run 10: Run 1 repeated with ψ_g sched. run in reverse direction ** Yaw Schedule "A": $\psi_g = -12^\circ$ to $+12^\circ$ by 2° 's. *** Pitch Schedule "A": $\alpha_g = -8^\circ$ to $+20^\circ$ by 2° 's.											

NOTES: 1. Consistent with Test 343 on this model, control surface gaps were not sealed.
 2. Wings W_1 , W_2 , and W_3 were constructed without deflectable ailerons. Although there were movable ailerons on wing W_0 , they were never deflected.

DATE	RUN	CONFIGURATION	TEST	q_{316}	α_9°	ψ_9°	δ_f°			FIGURE NO.
8-22	11	B ₀ W ₂ F ₀ S ₄ V ₄ H ₁ ⁰	P ₆	23.1	A	0	45			3.37, 3.39
	12	"	Y ₆	"	0	A	"			Not presented
	12-1	"	"	"	"	"	"			3.51, 3.53
	13	"	"	"	-4	"	"			3.54
	14	"	"	"	4	"	"			3.51
	15	"	"	"	8	"	"			3.51, 3.53
	16	"	"	"	16	"	"			3.51
	17	B ₀ W ₂ F ₀ S ₄ V ₄ H ₁ ^{2.5}	P ₆	"	A	0	"			3.39
	18	"	"	"	"	"	"			3.39
	19	"	"	"	"	"	"			3.39
8-23	20	"	"	"	"	"	0			3.39, 3.42
	21	"	"	"	"	"	"			3.39
	22	"	"	"	"	"	"			3.39
	23	"	"	"	"	"	"			3.39
	24	"	"	"	"	"	"			3.39
	25	B ₀ W ₂ F ₀ S ₄ V ₄ H ₁ ⁰	"	"	"	"	"			3.42

REMARKS Run 12, Zero shift in M & R

DATE	RUN	CONFIGURATION	TEST	α_g	α_g°	W_g°	δ_f°			FIGURE NO.
8-23	26	$50W_2F_5W_4H_10$	P6	29.1	A	0	0			3.42
	27	$30W_2F_5W_4$	"	"	"	"	"		Set M_2 's	3.34, 3.39 3.43, 3.44
	28	"	Y6	"	0	A	"			3.50, 3.53
	29	"	"	"	8	"	"			3.50, 3.53
	30	"	"	"	15	"	"			3.50, 3.53
	31	"	"	"	0	"	45			Not presented
	31-1	"	"	"	"	"	"			3.50, 3.53
	32	"	"	"	8	"	"			3.50, 3.53
	33	"	P6	"	A	0	"			3.36, 3.39, 3.41
	34	$50W_2F_4W_5$	"	"	"	"	45			3.36
	35	$50W_2F_5W_4$	"	"	"	"	"			3.36
	36	$50W_2F_5W_4 + f_3 + TUFTS$	P6 + TUFT PIX	"	"	"	0		*	3.43
	37	" + f_2 + "	"	"	"	"	"			3.43
	38	" + f_1 + "	"	"	"	"	"			3.43
	39	" + g + "	"	"	"	"	"			3.44
8-24	40	$50W_2F_5W_4 + g_1$	P6	"	"	"	"			3.45

REMARKS * TUFT PIX $\alpha_g = 0^\circ$ to 20° by 2° 's

Run 31: Zero shift in M

DATE	RUN	CONFIGURATION	TEST	$q_{m,c}$	α_g°	W_g°	S_f^2			FIGURE NO.
8-24	41	80W ₃ F ₀ S ₄ ^M	P ₆	23.1	A	0	0			3.34, 3.45
	42	"	Y ₆	"	0	A	"			Not presented
	42-1	"	"	"	"	"	"			3.52
	43	"	"	"	8	"	"			3.52
	44	"	"	"	16	"	"			3.52
	45	80W ₄ F ₁ S ₄ ^M	P ₆	"	A	0	"			3.35
	46	"	Y ₆	"	0	A	"			3.49
	47	"	"	"	8	"	"			3.49
	48	"	P ₆	"	A	0	45			3.35, 3.36
	49	"	Y ₆	"	8	A	"			3.40
	49-1	"	"	"	"	"	"			Not presented
	50	80W ₄ F ₁ S ₄ ^M	P ₆	"	A	0	"			3.49
	51	" F ₆ "	"	"	"	"	"			3.38
	52	" F ₇ "	"	"	"	"	"			3.38
	53	80W ₄ F ₁ S ₄ V ₁₀ H ₁₀	"	"	"	"	"			3.38
	54	" H ₅	"	"	"	"	"		See H ₅ 's	3.40

REMARKS Run 42 - Zero shift
Run 49 - Zero shift

DATE	RUN	CONFIGURATION	TEST	α_g°	ψ_g°	δ_f°	FIGURE NO.
8-24	55	W.F.S.V.H. 0	P _g	A	0	45	3.40
	56	W.F.S.V.H. 0	"	"	"	"	3.37
	57	W.F.S.V.H. 2.5	"	"	"	"	3.39
	58	W.F.S.V.H. 0	"	"	"	0	3.34, 3.42
8-27	59	W.F.S.V.H. 0	"	"	"	"	3.47
	59-1	"	"	"	"	"	not represented
	60	"	Y _g	0	A	"	3.33, 3.46
	61	W.F.S.V.H. 0	P _g	A	0	"	3.48
	62	W.F.S.V.H. 0	"	"	"	"	3.46
	63	W.F.S.V.H. 0	"	"	"	45	3.41
	64	"	Y _g	0	A	"	3.54
	65	" H-2.5	P _g	A	0	"	3.41
	66	" H-2.5	"	"	"	"	3.41

REMARKS Run 58 - rerun of 57 except for duratite fairing on V

Run 59 - Zero shift in H

** Flat-plate horizontal tail, H₂, was constructed without elevators.

*** In the absence of the simulated wing fan covers, filler blocks were substituted which made a smooth air foil section.

59-1 0



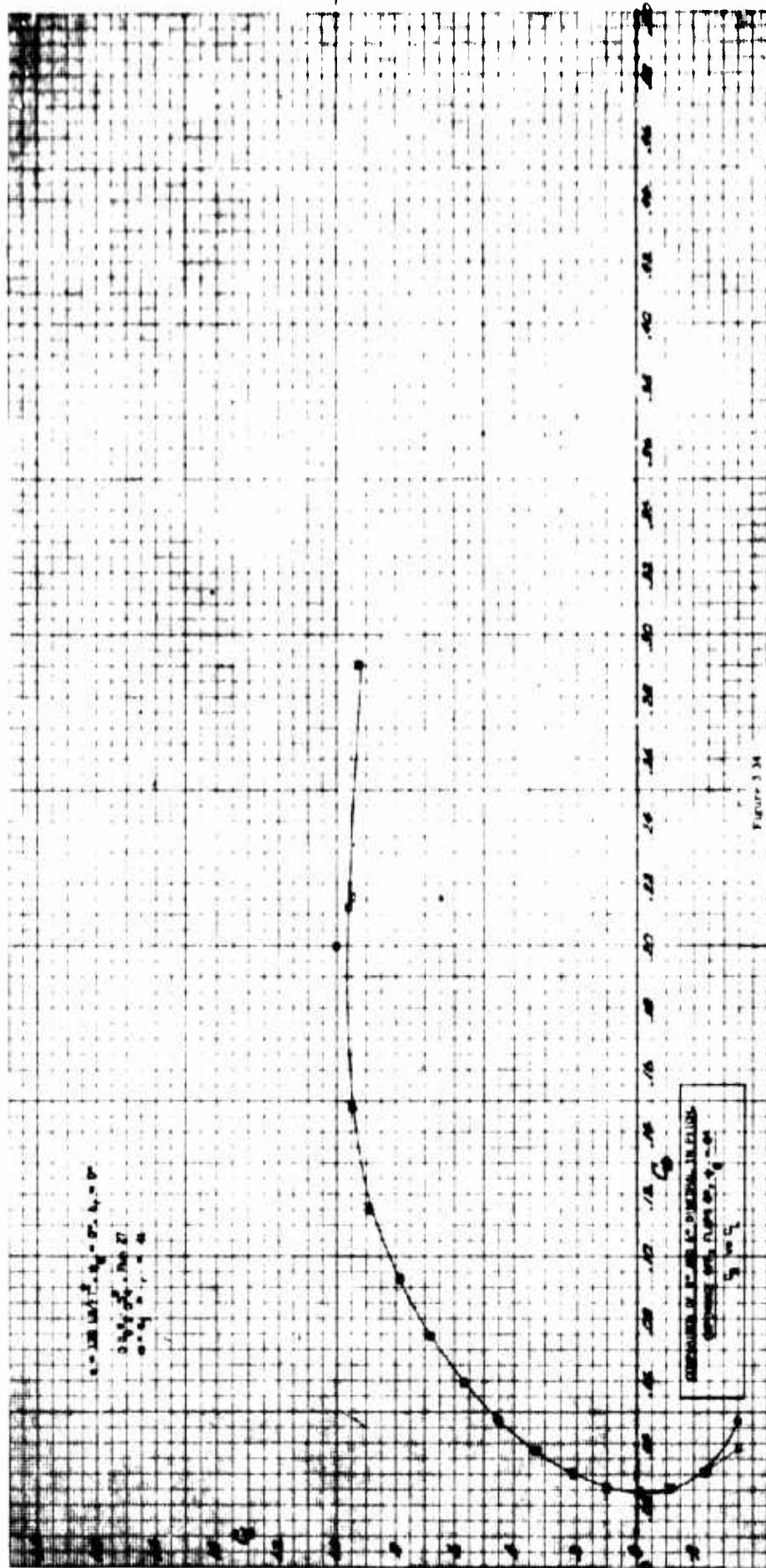


Figure 3.34

Run 576
27 0
41 0

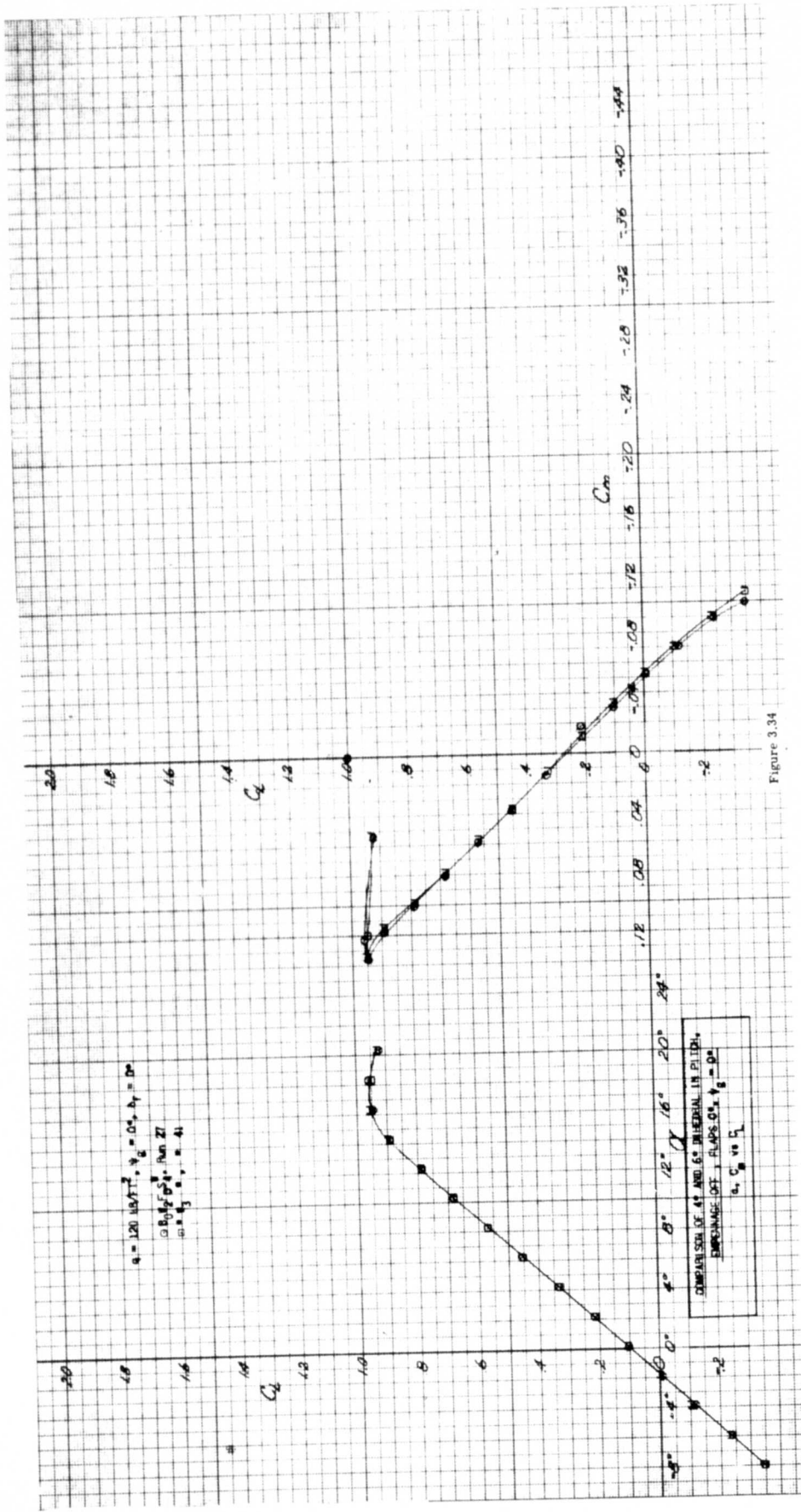


Figure 3.34

RUN SYM
 27 \square
 41 \square

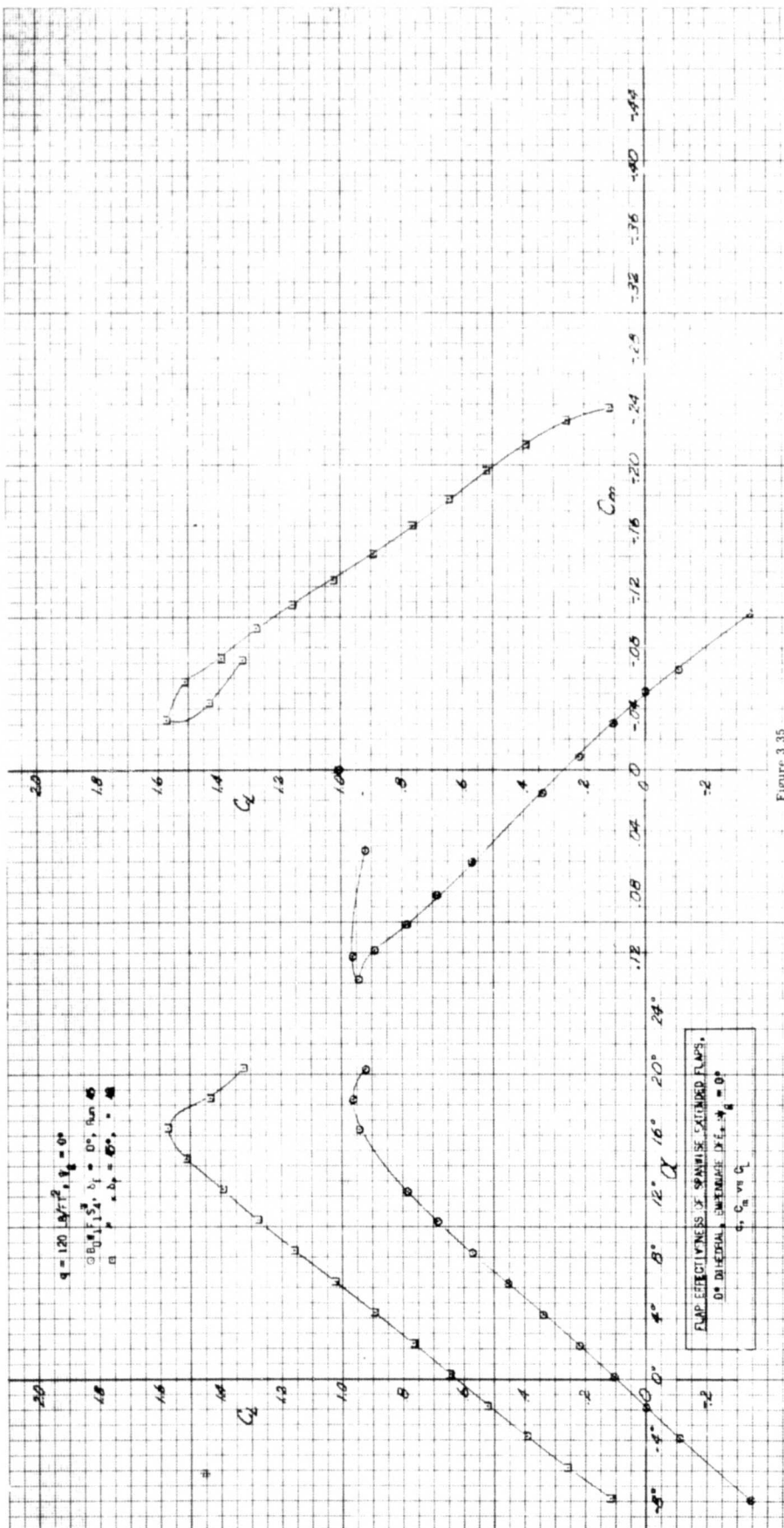
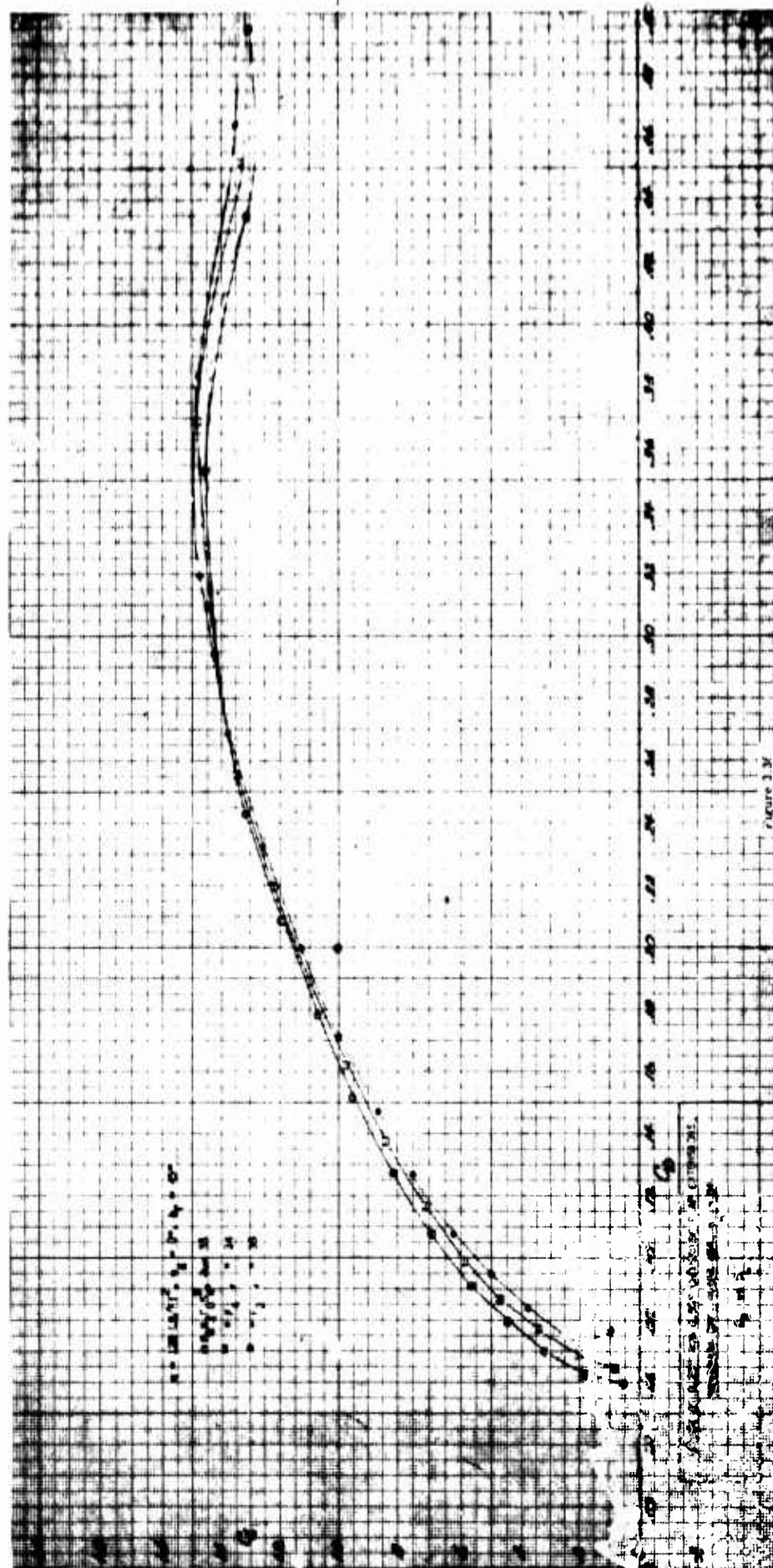


Figure 3.35

RUN SYM
 45 C
 48 D



44 0
34 0
45 0

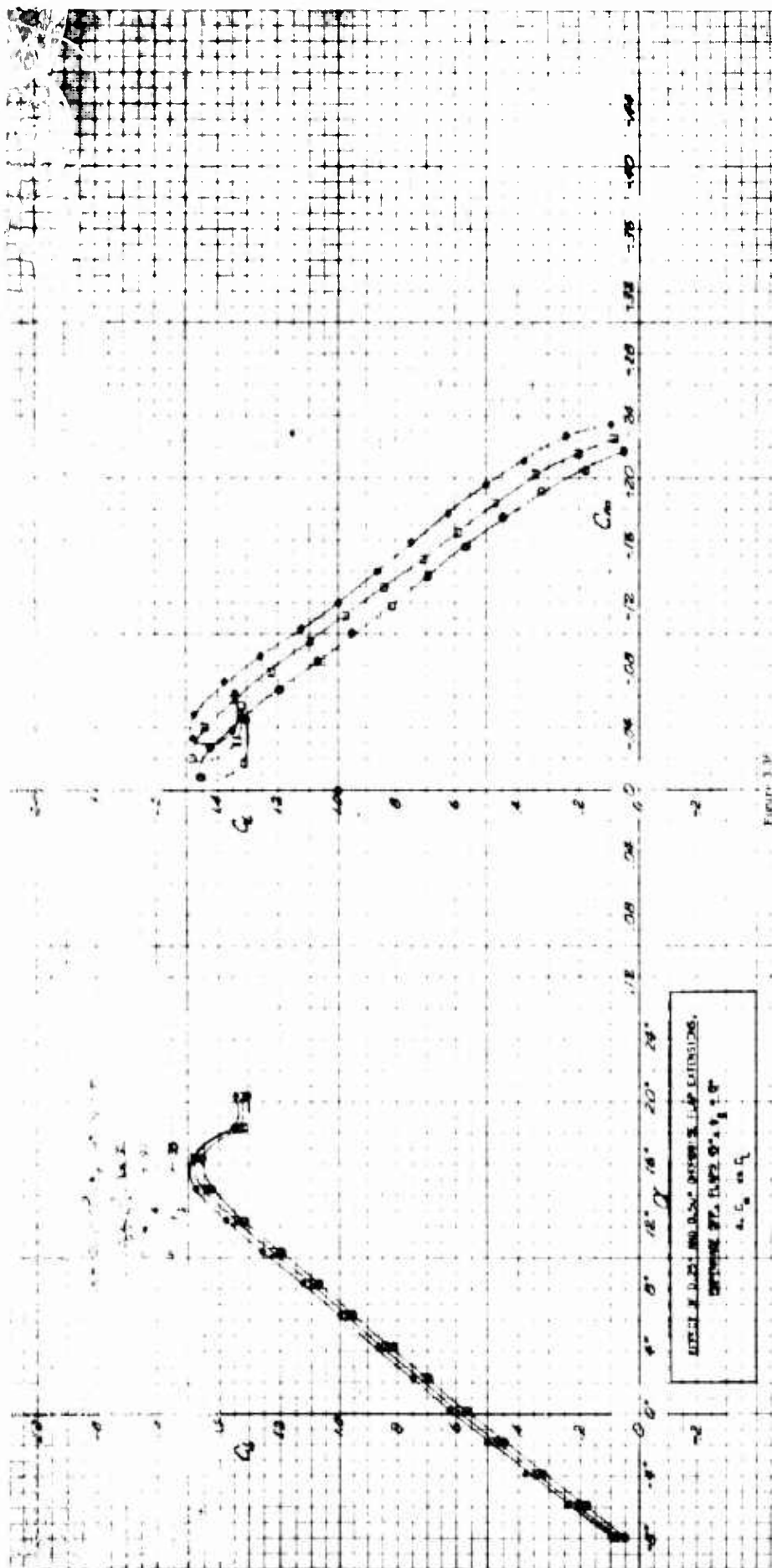


Figure 3.10

RUN 311
 33
 34
 35

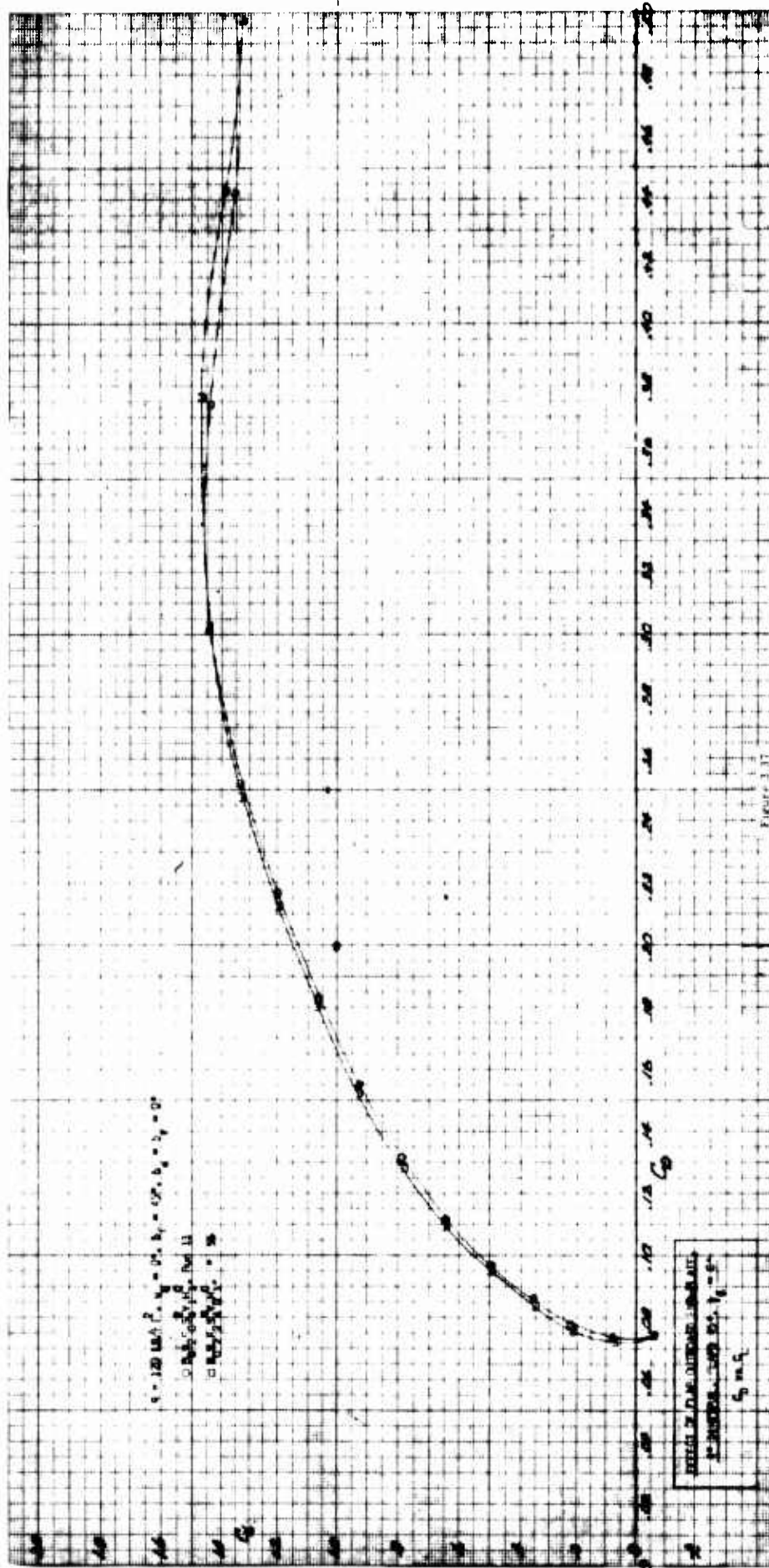


Figure 1.17

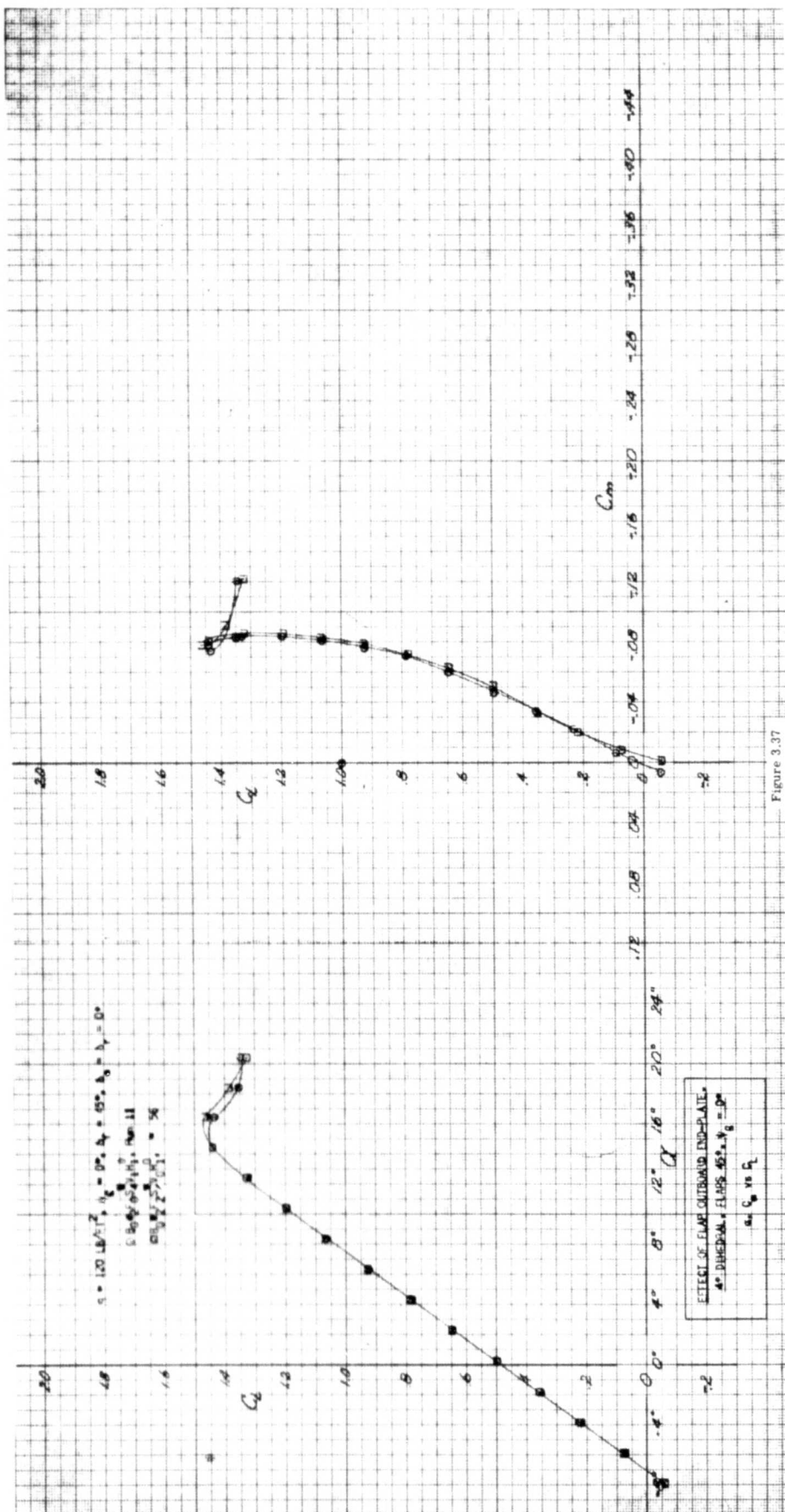
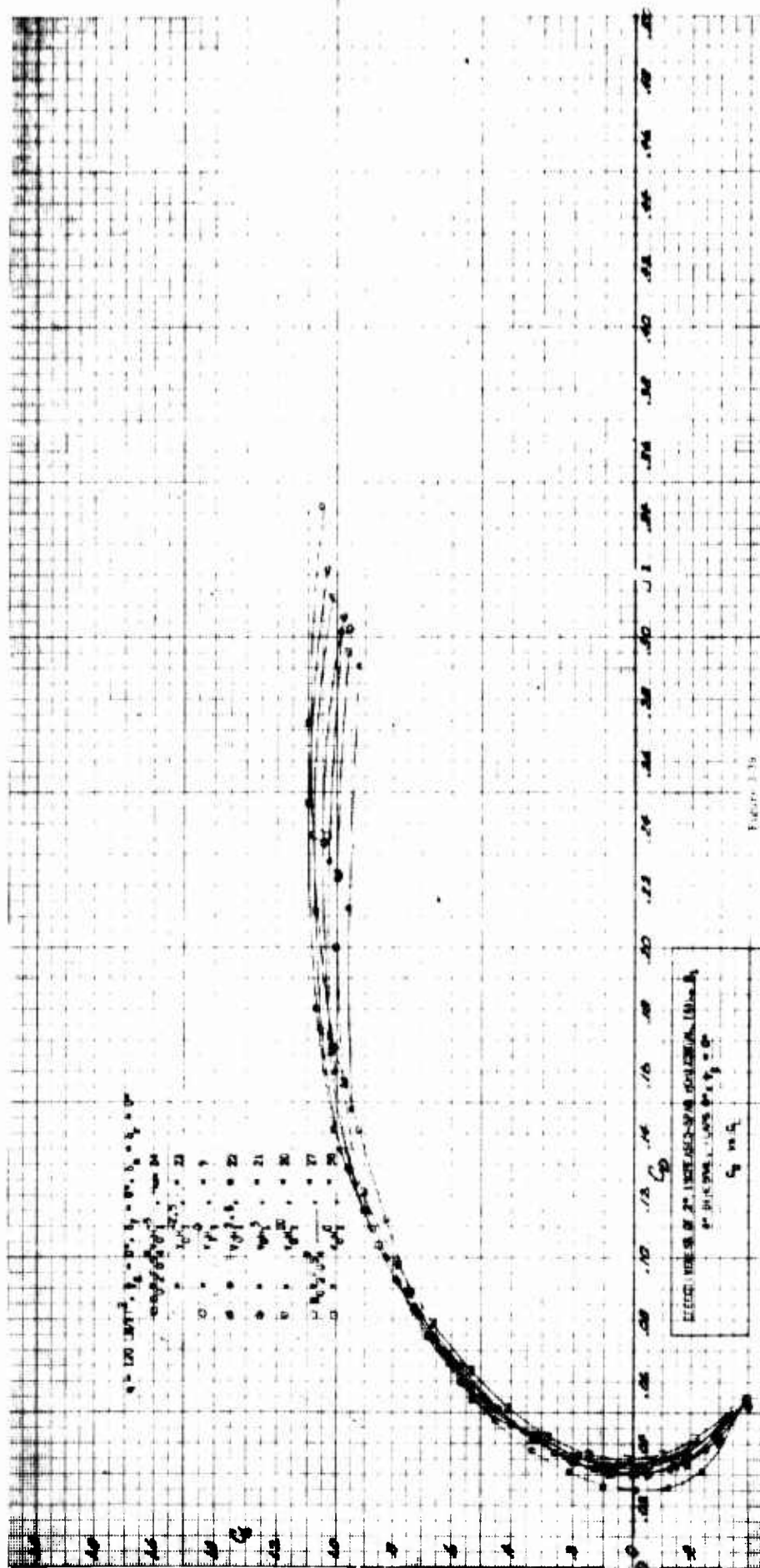


Figure 3.37

RUN SYM
 11 O
 56 U



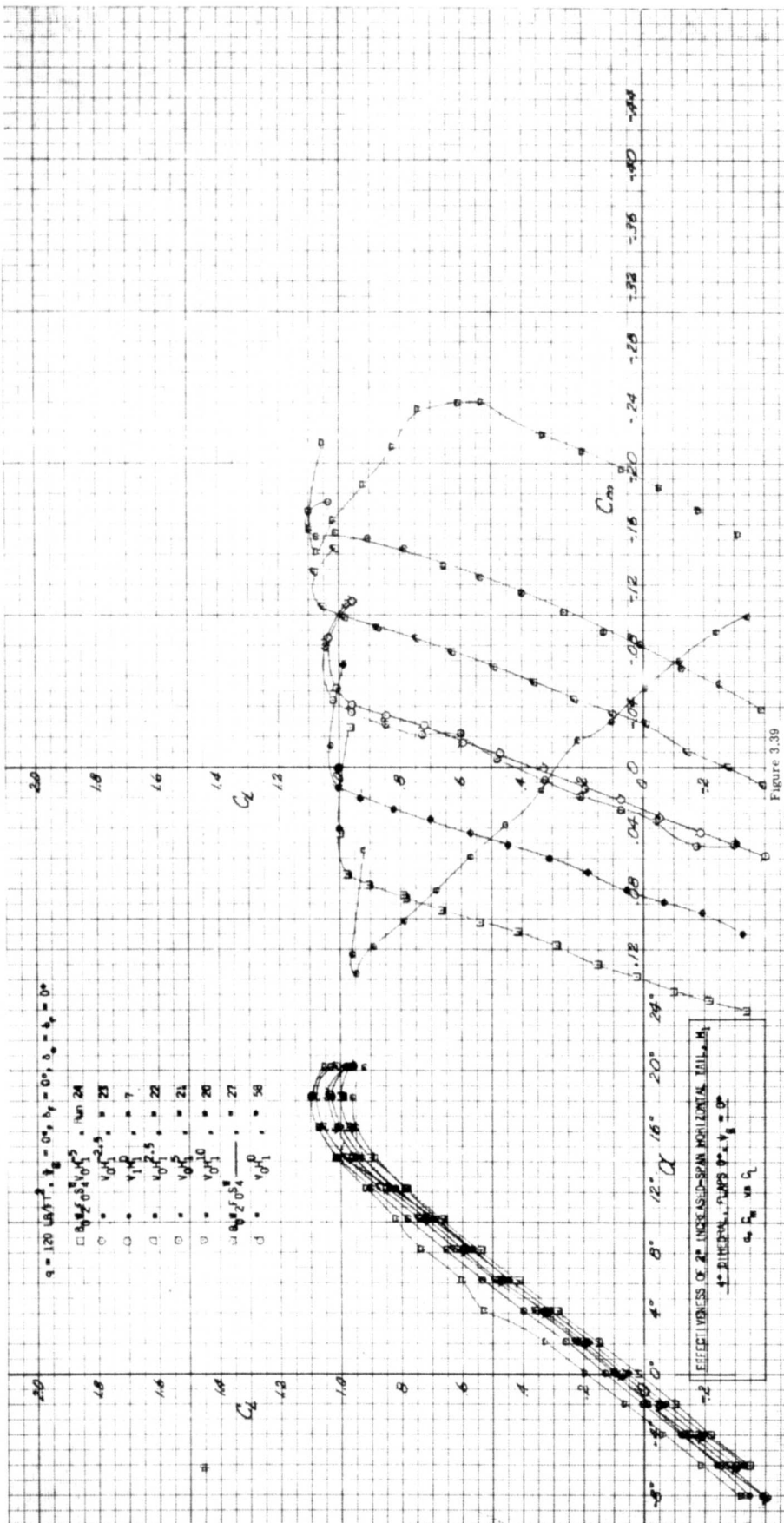
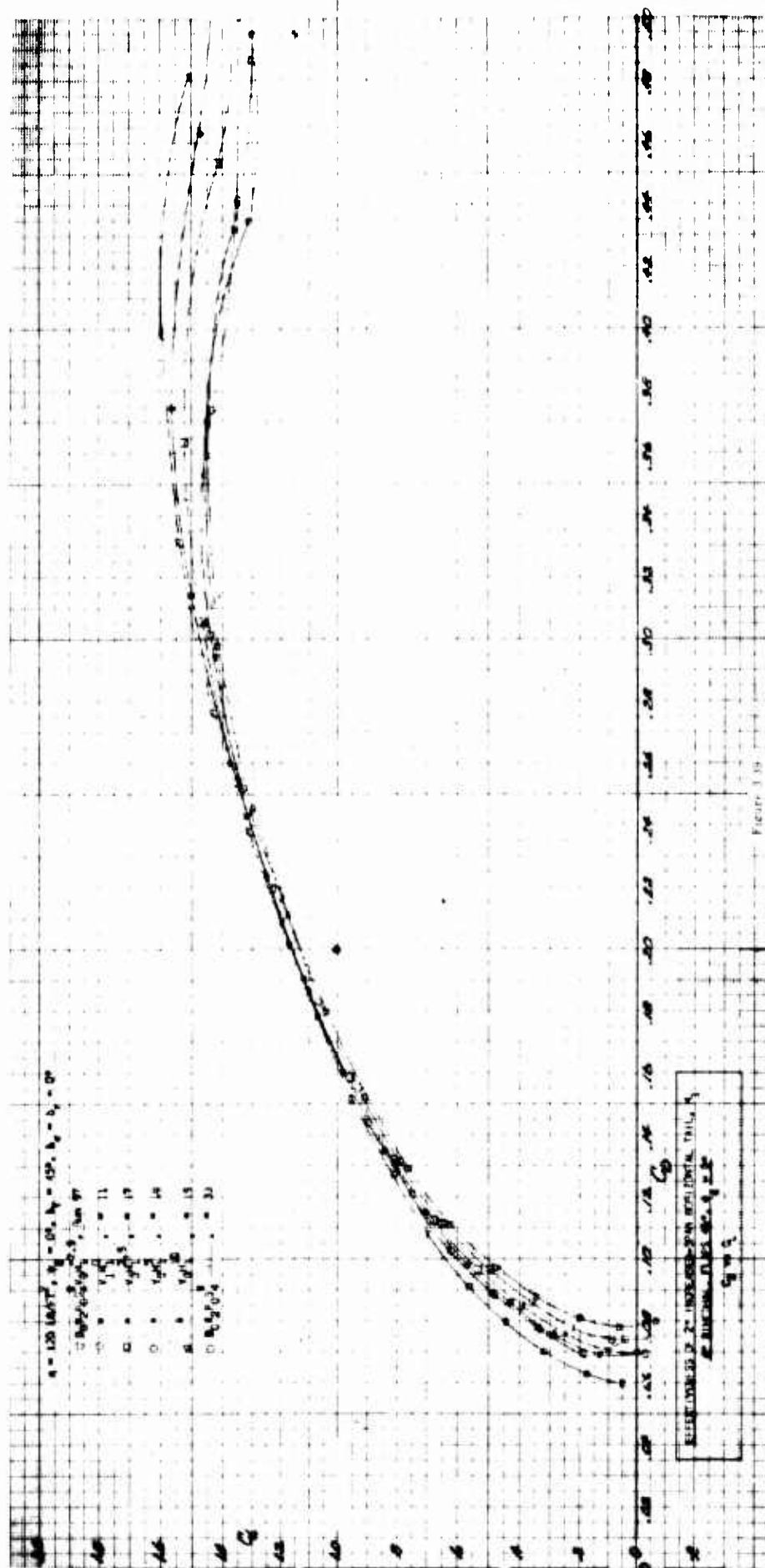
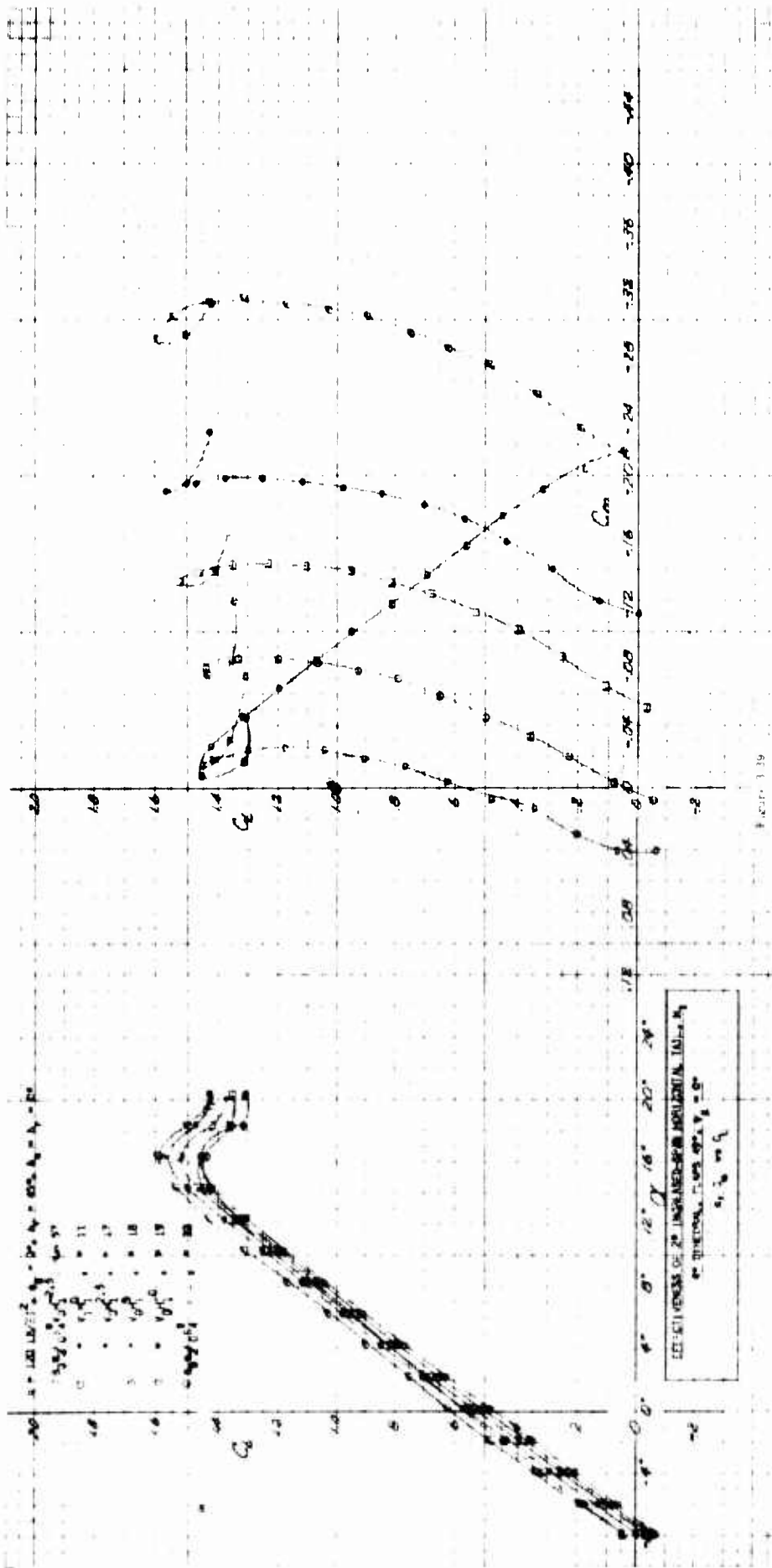


Figure 3.39

RUN SYM
 7 \circ
 24 \square
 23 \cdot
 22 \square
 21 \circ
 20 \cdot
 27 \square
 58 \cdot





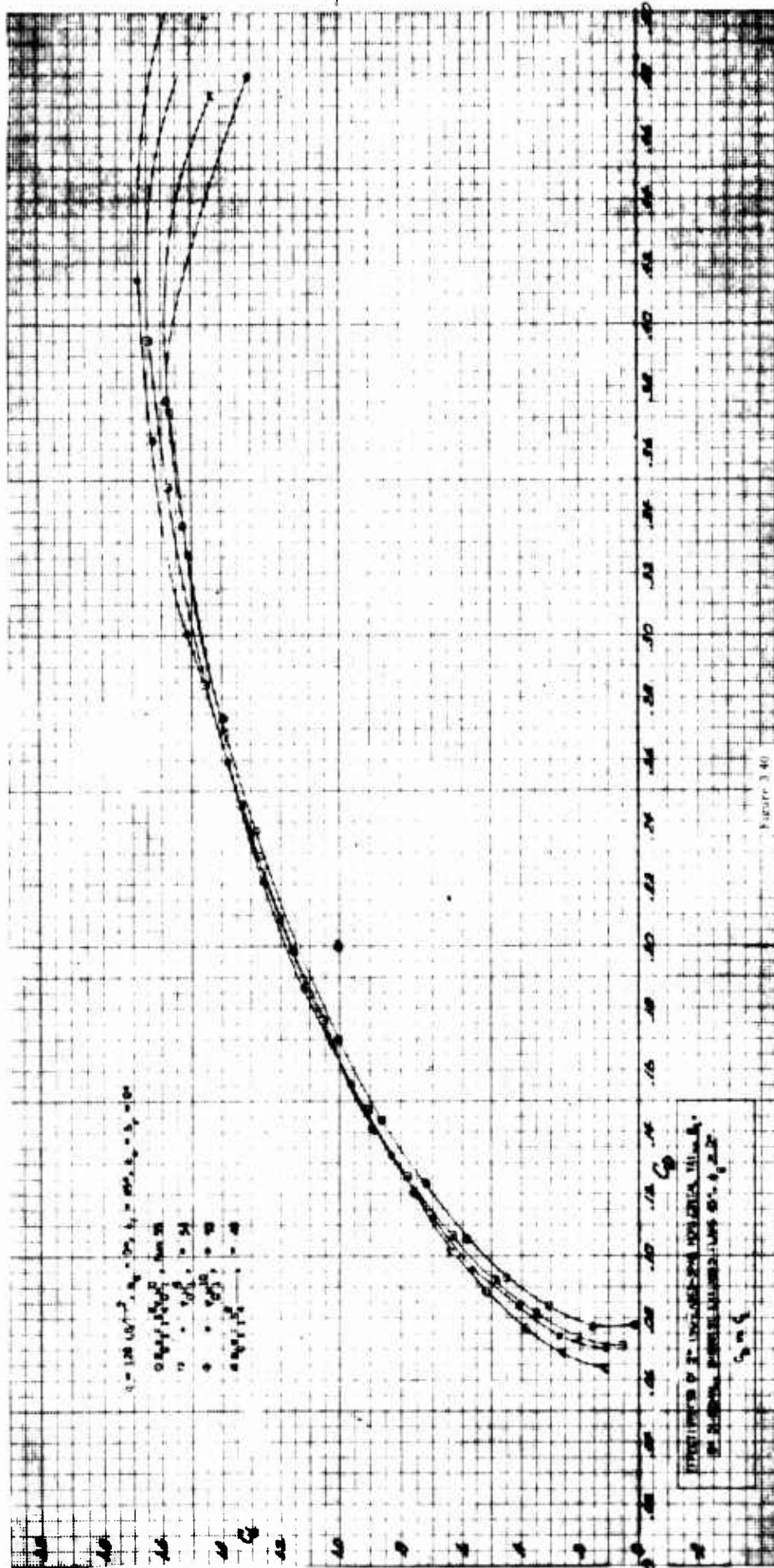


Figure 3.40

RUN 570
 1.0
 1.0
 1.0

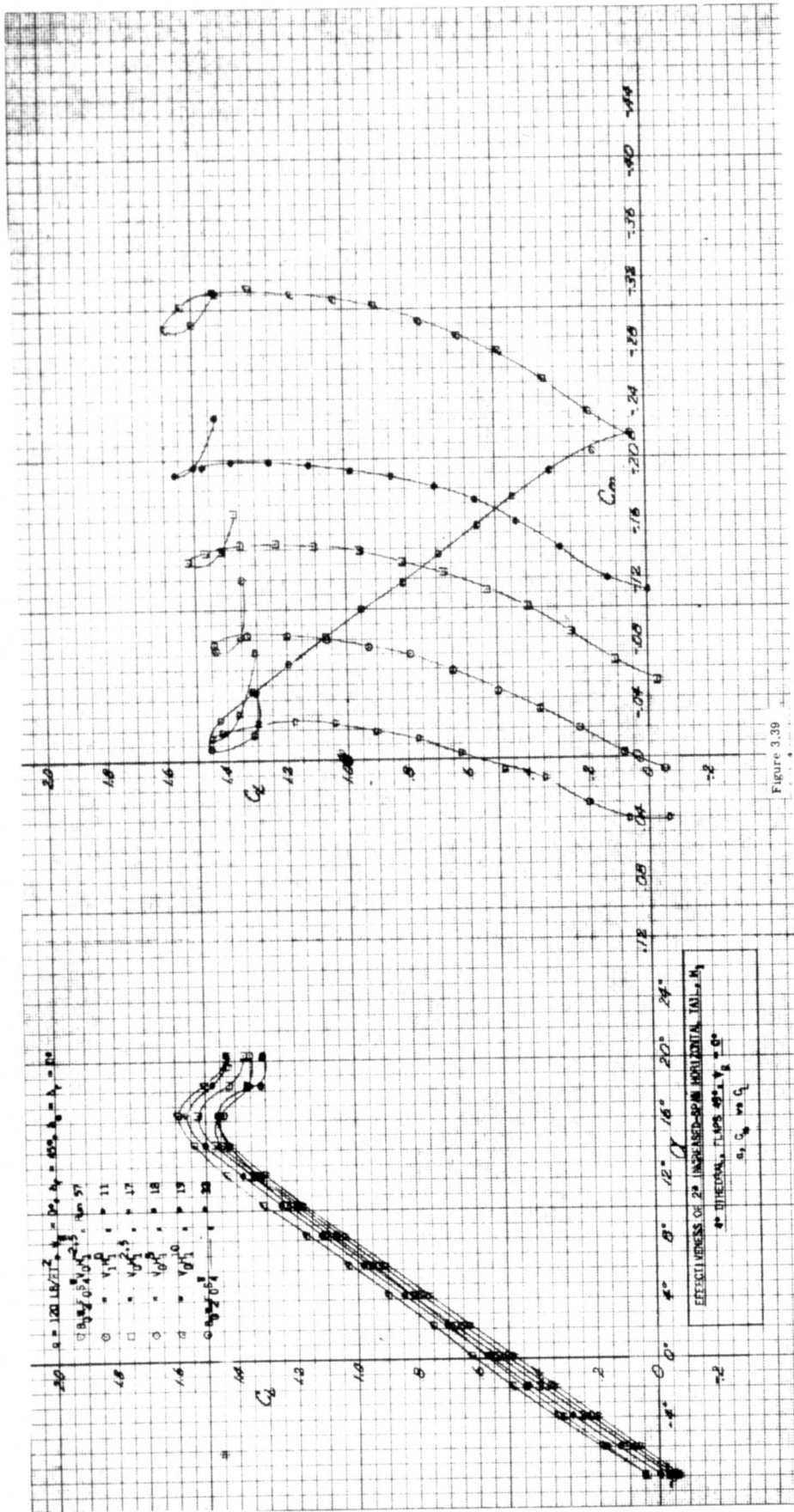


Figure 3.39

RUN SYM
 11 0
 17 0
 18 0
 19 0
 33 0
 57 0



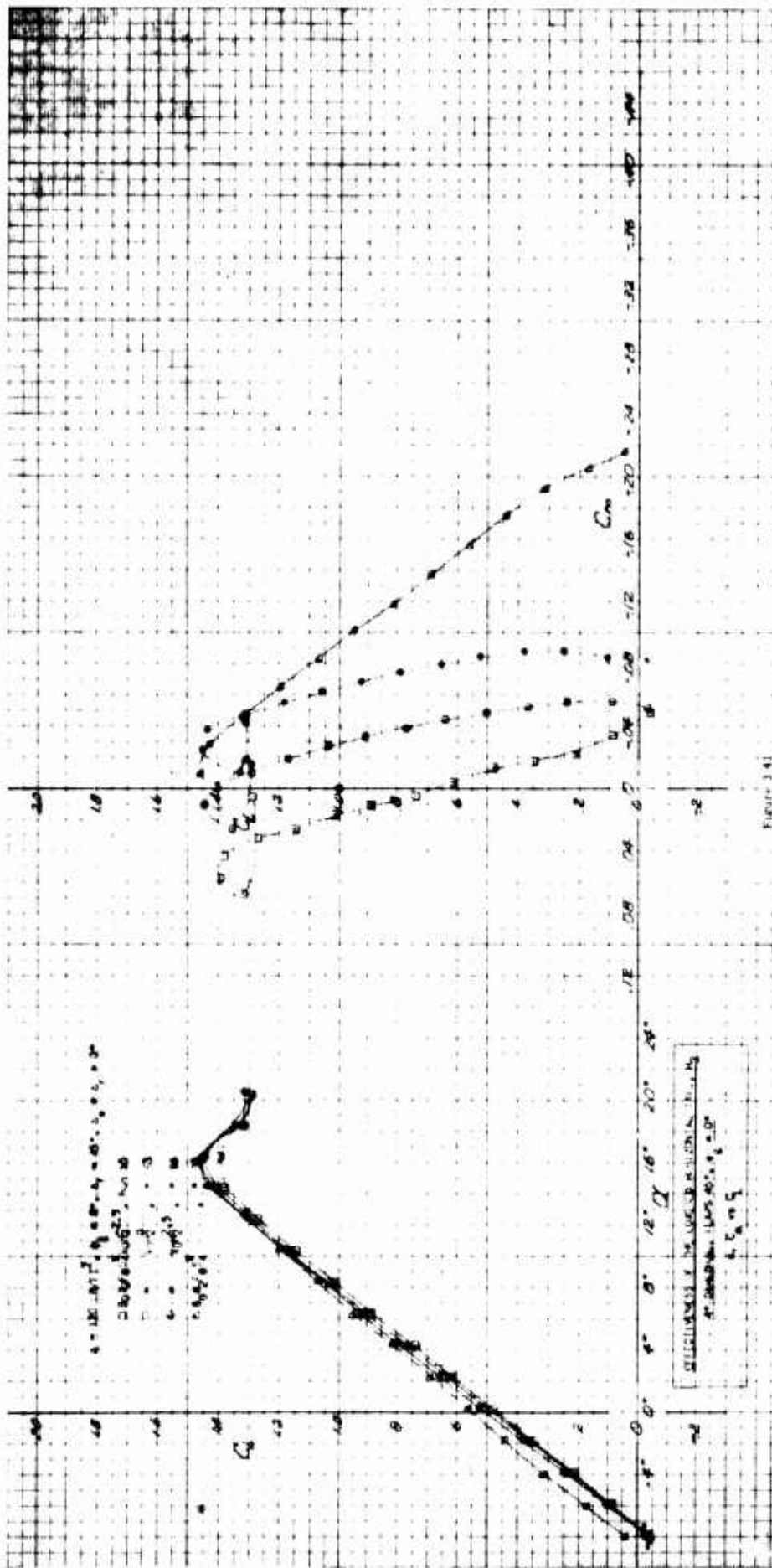
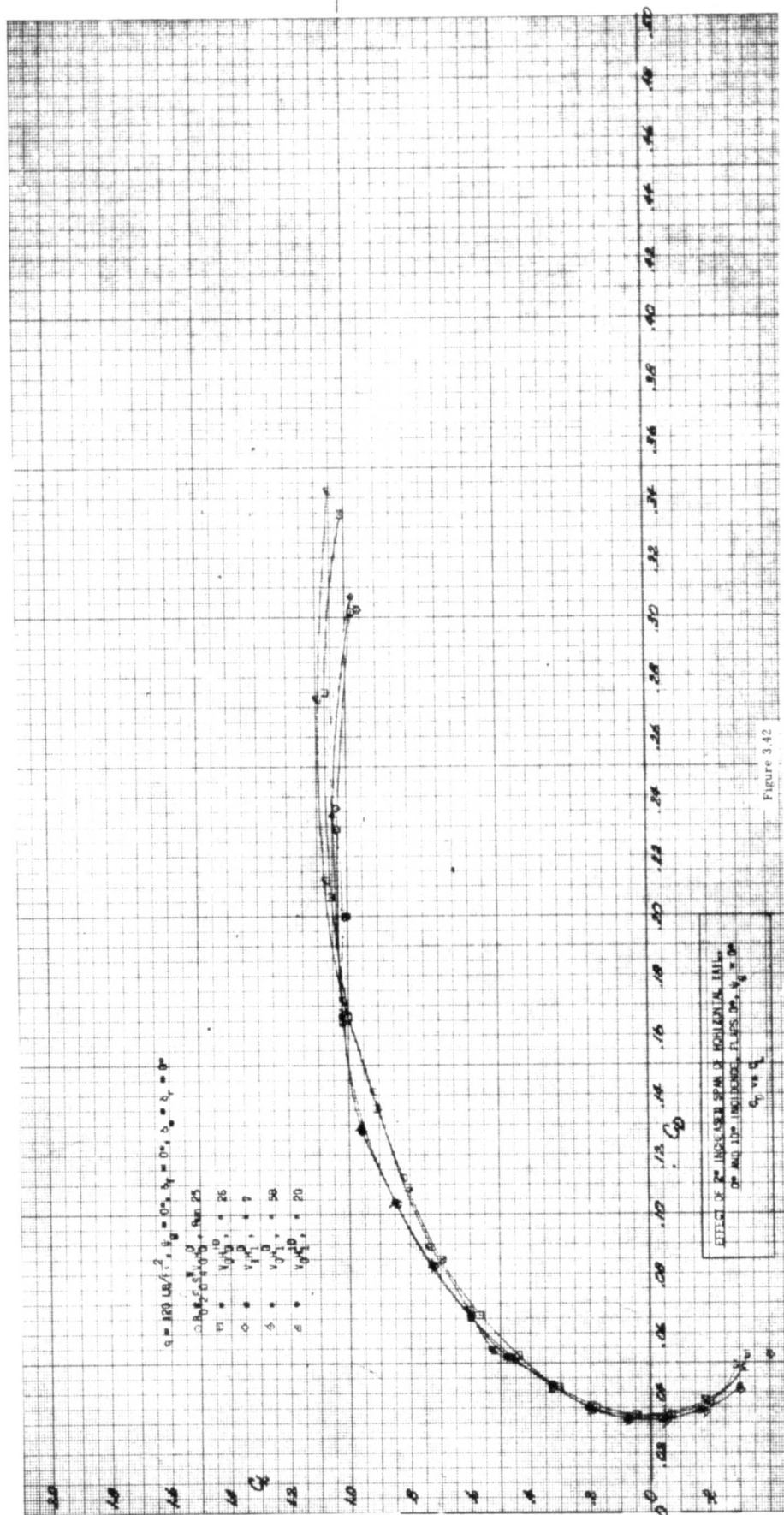
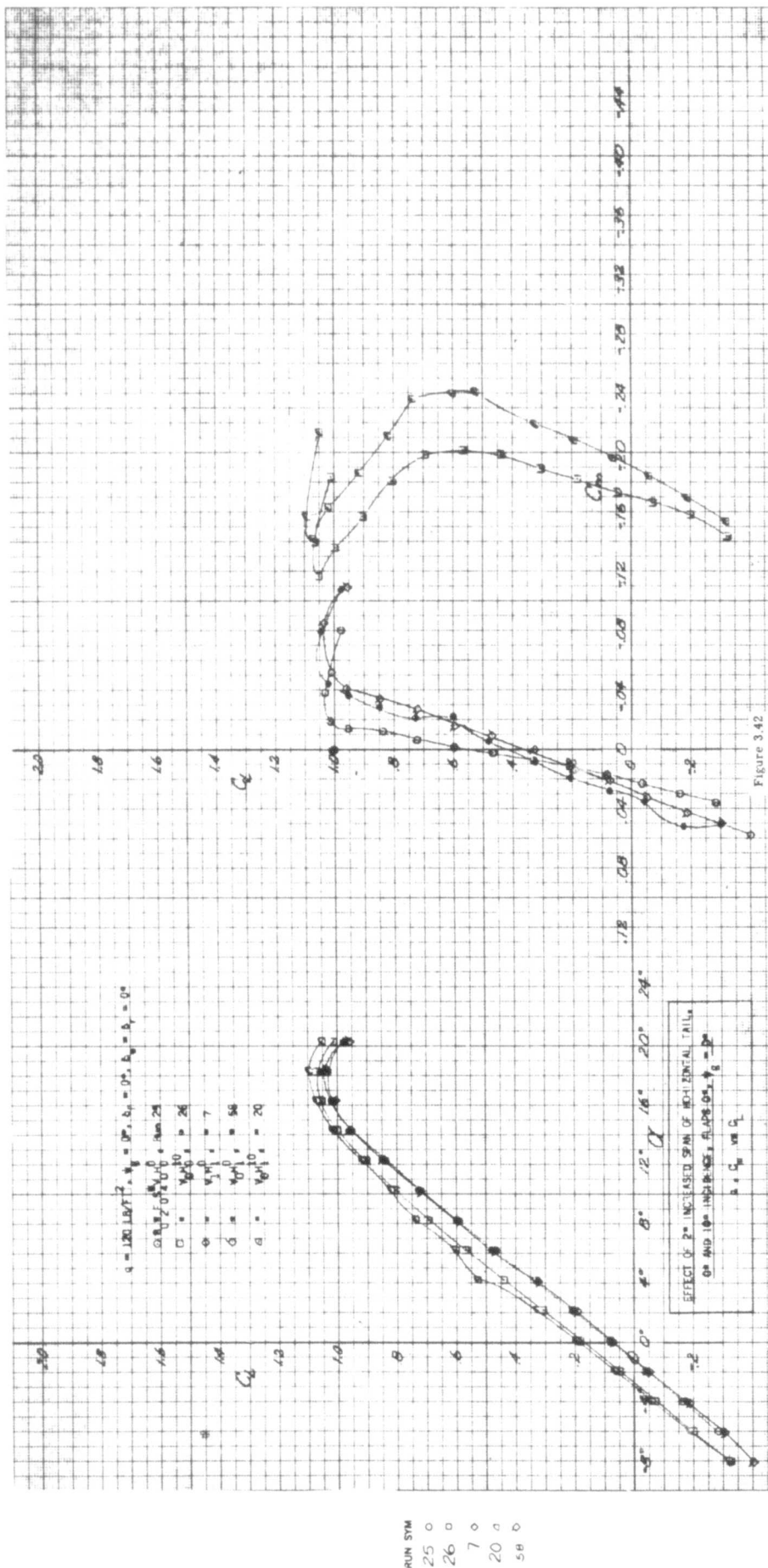


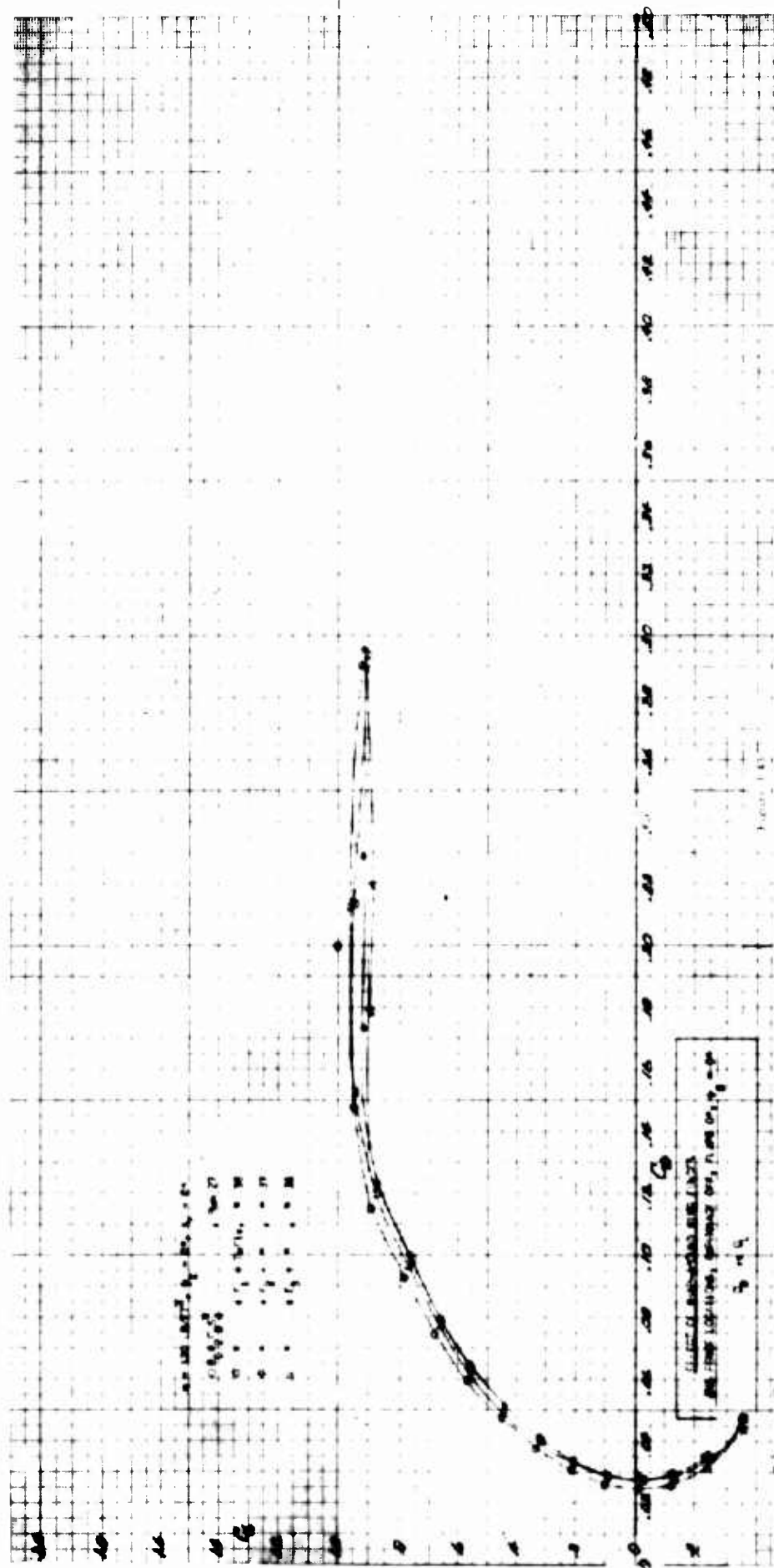
Figure 3.41

RUN 574
 1.15 0
 1.15 0
 33 0



RUN	SYM
25	0
26	0
7	0
20	0
11	0





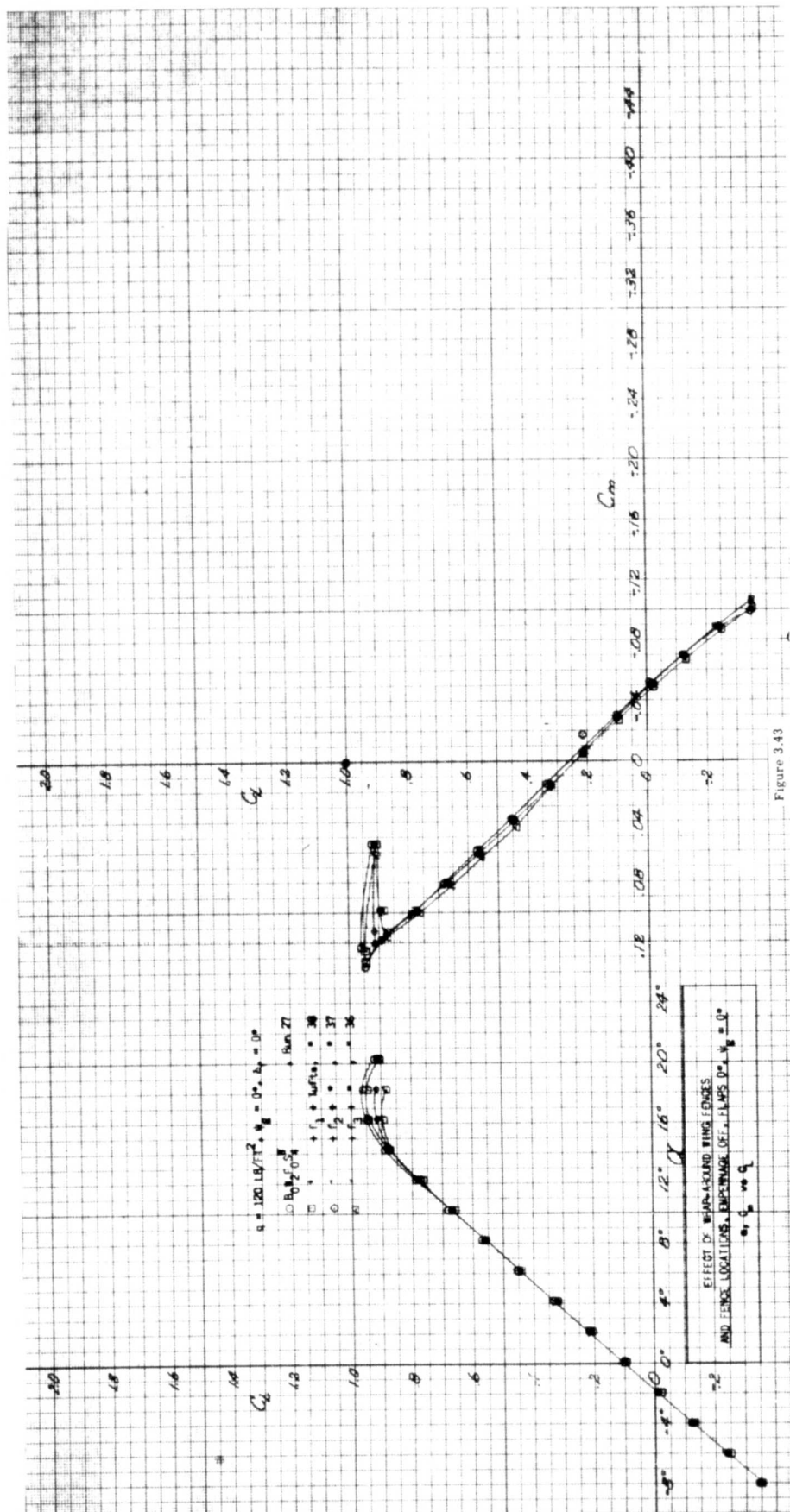


Figure 3.43

RUN SYM
 27 \square
 38 \circ
 37 \triangle
 36 \square

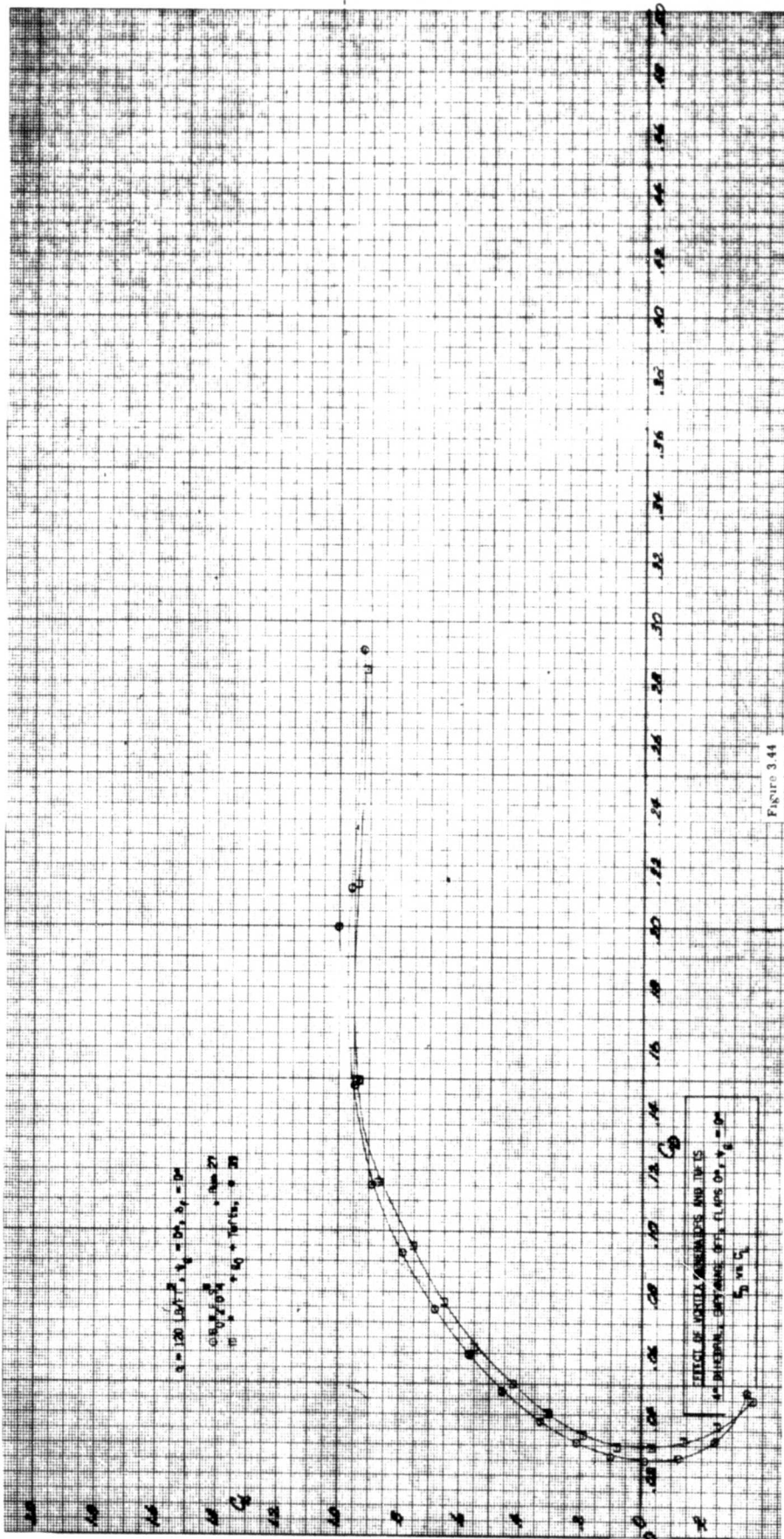


FIGURE 3.44

RUN SYN
 27
 39

RUN SYM
27 ○
39 □

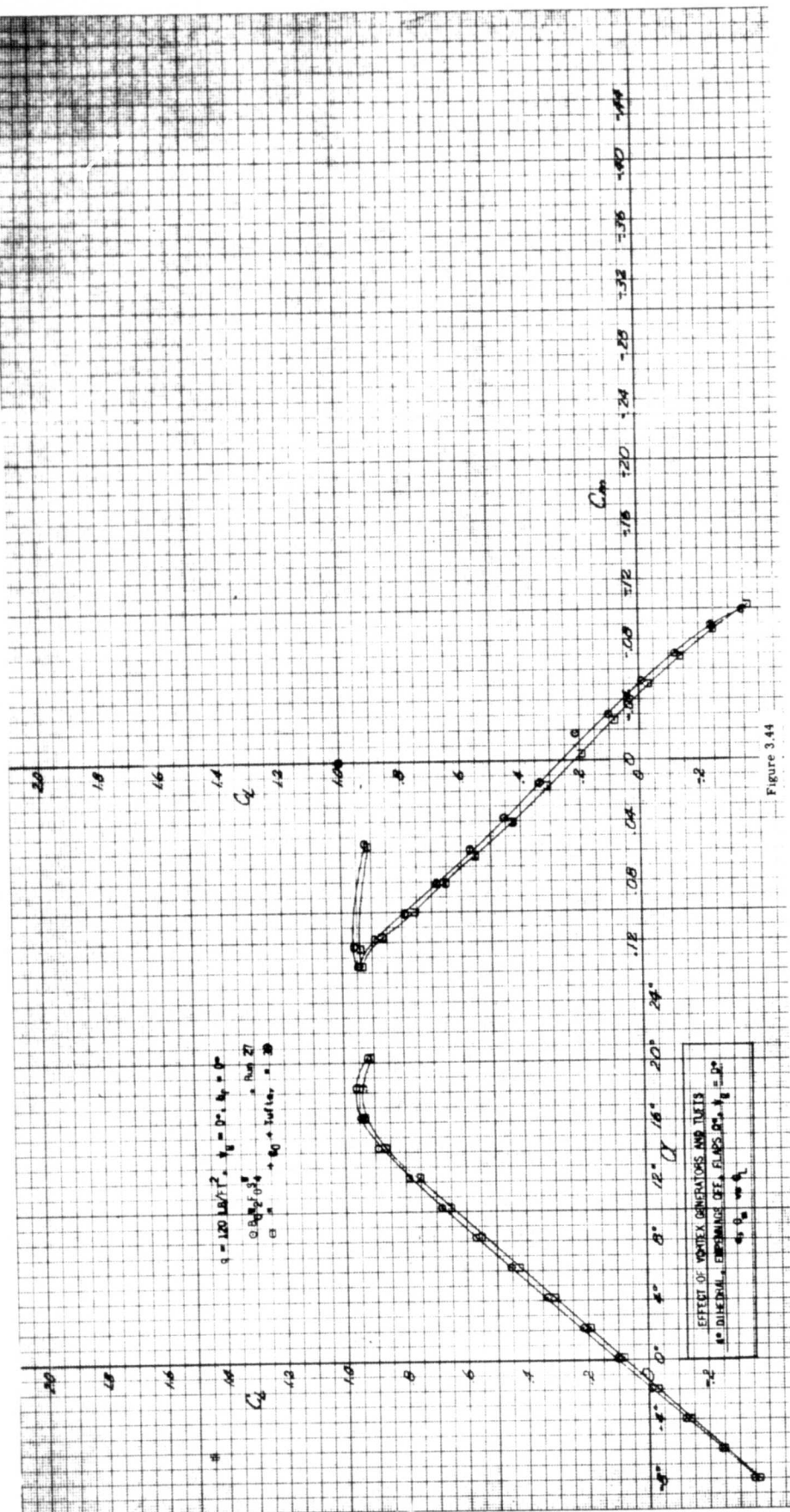
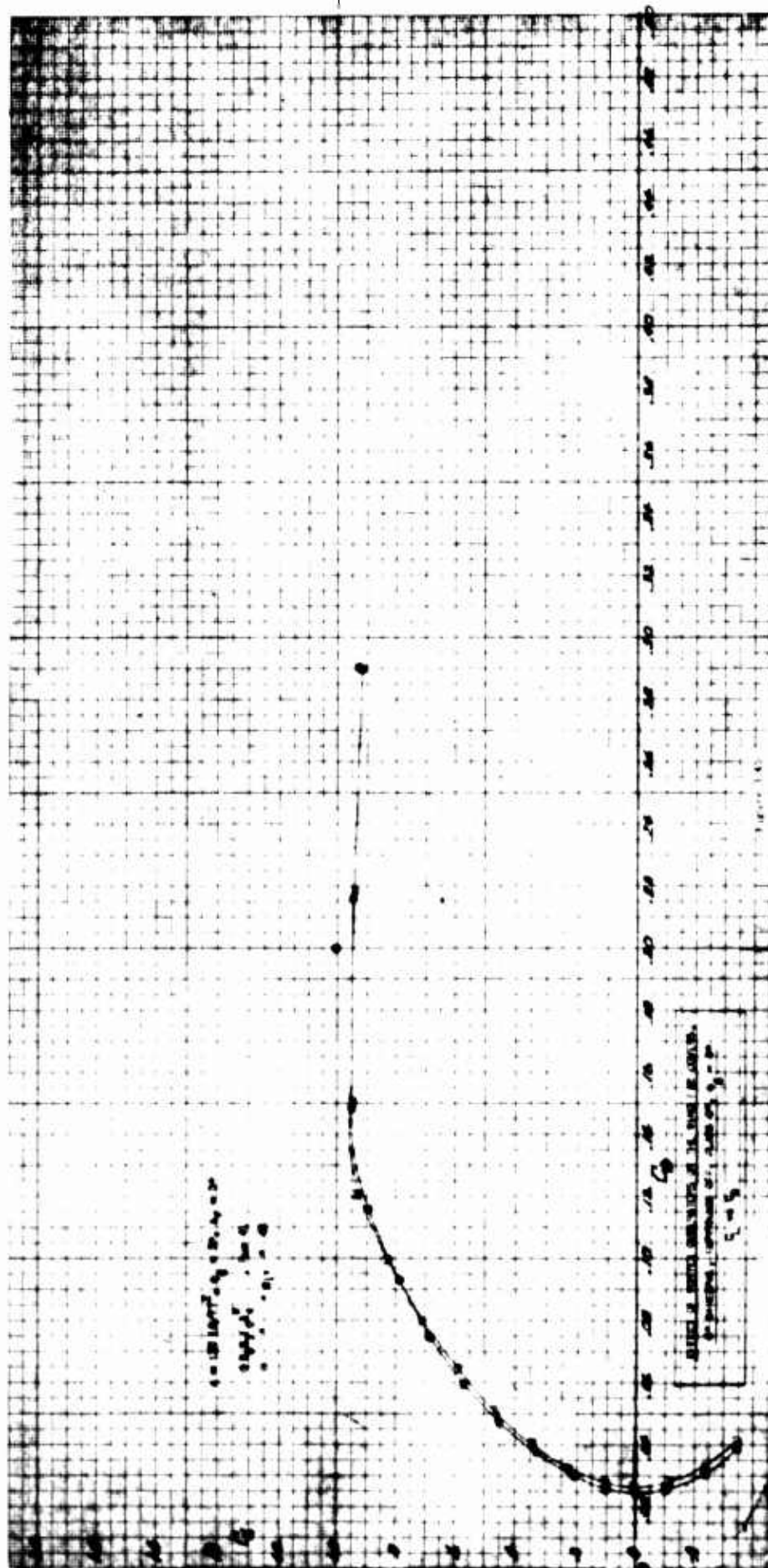
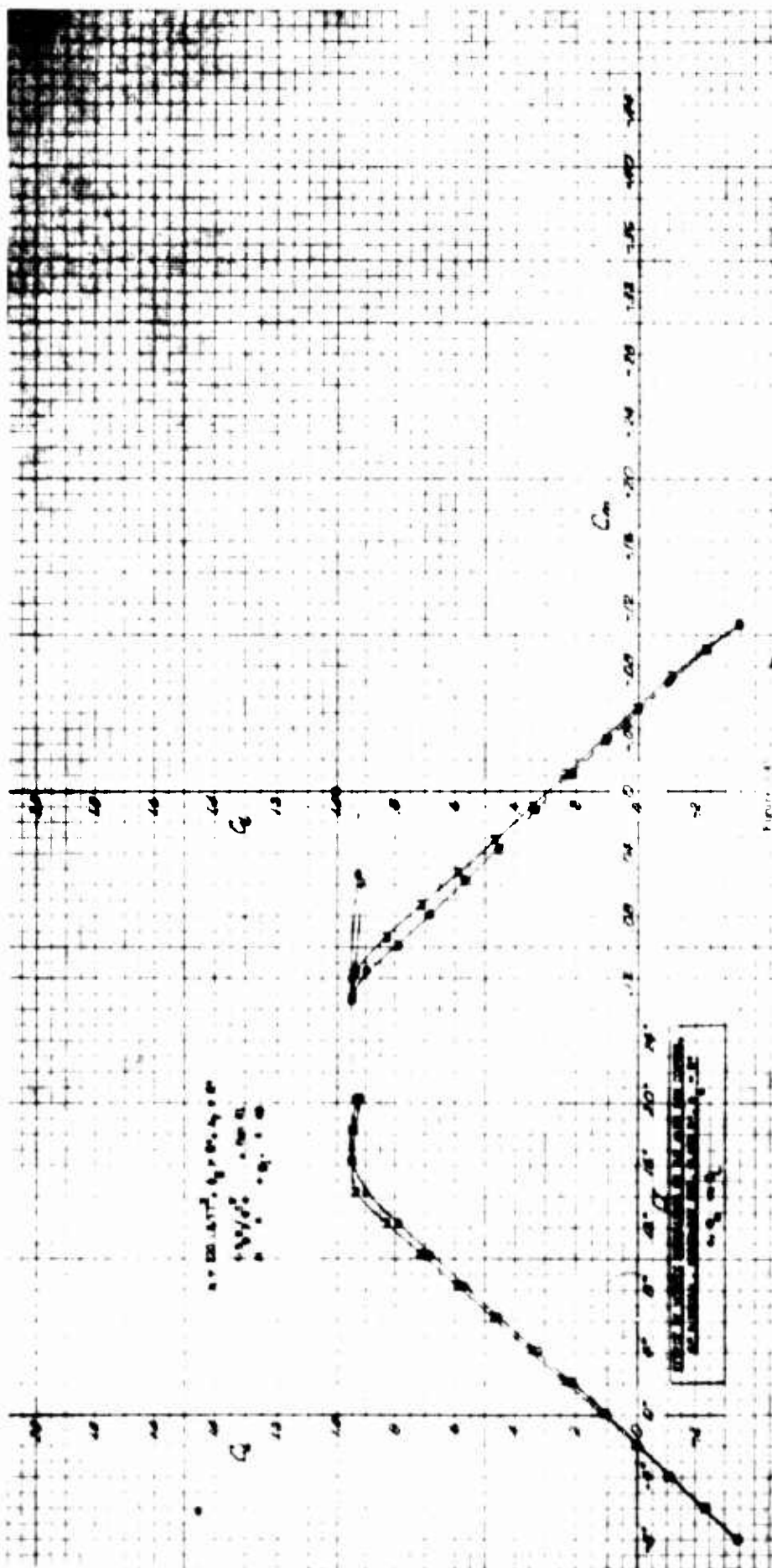


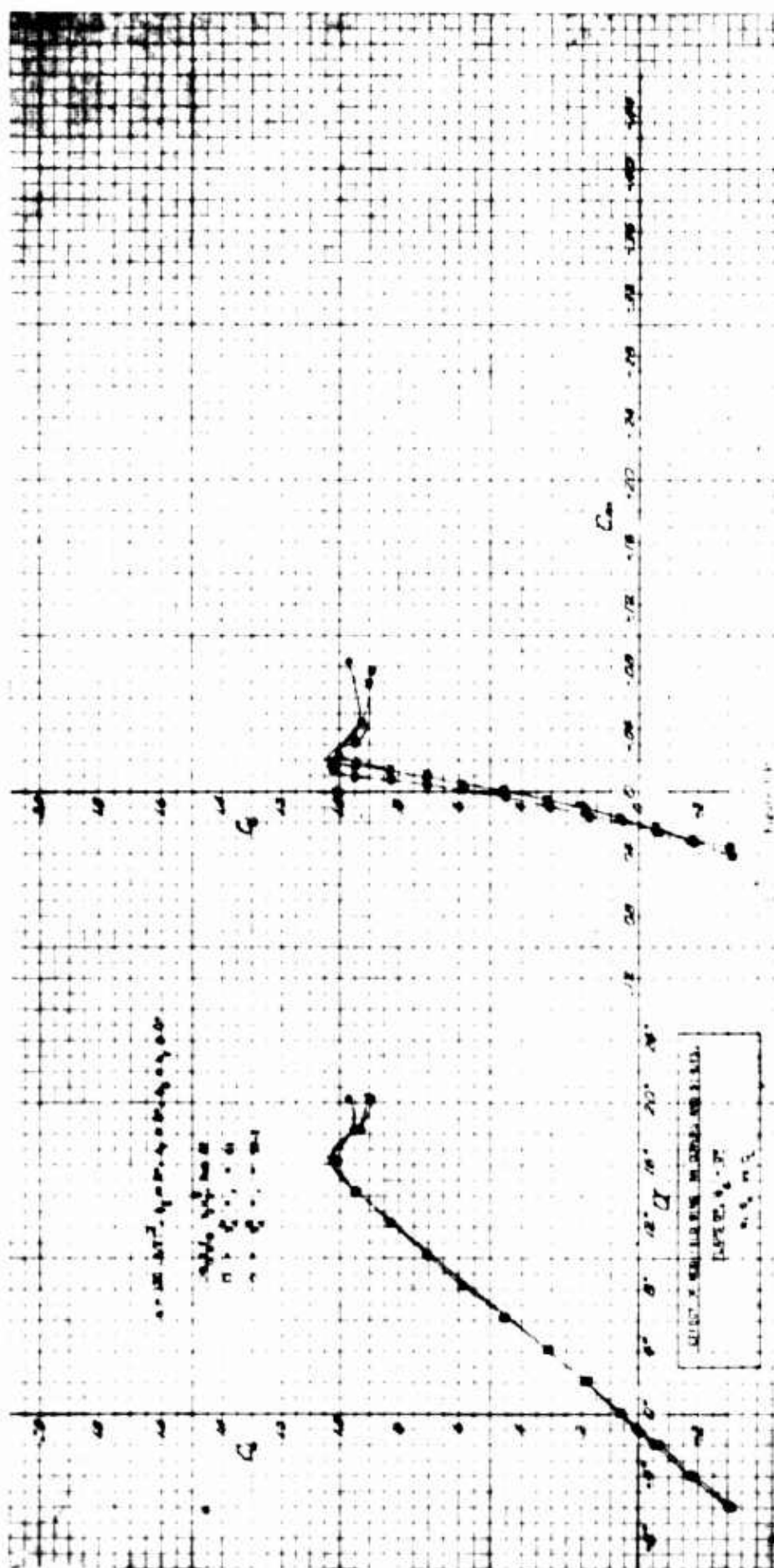
Figure 3.44

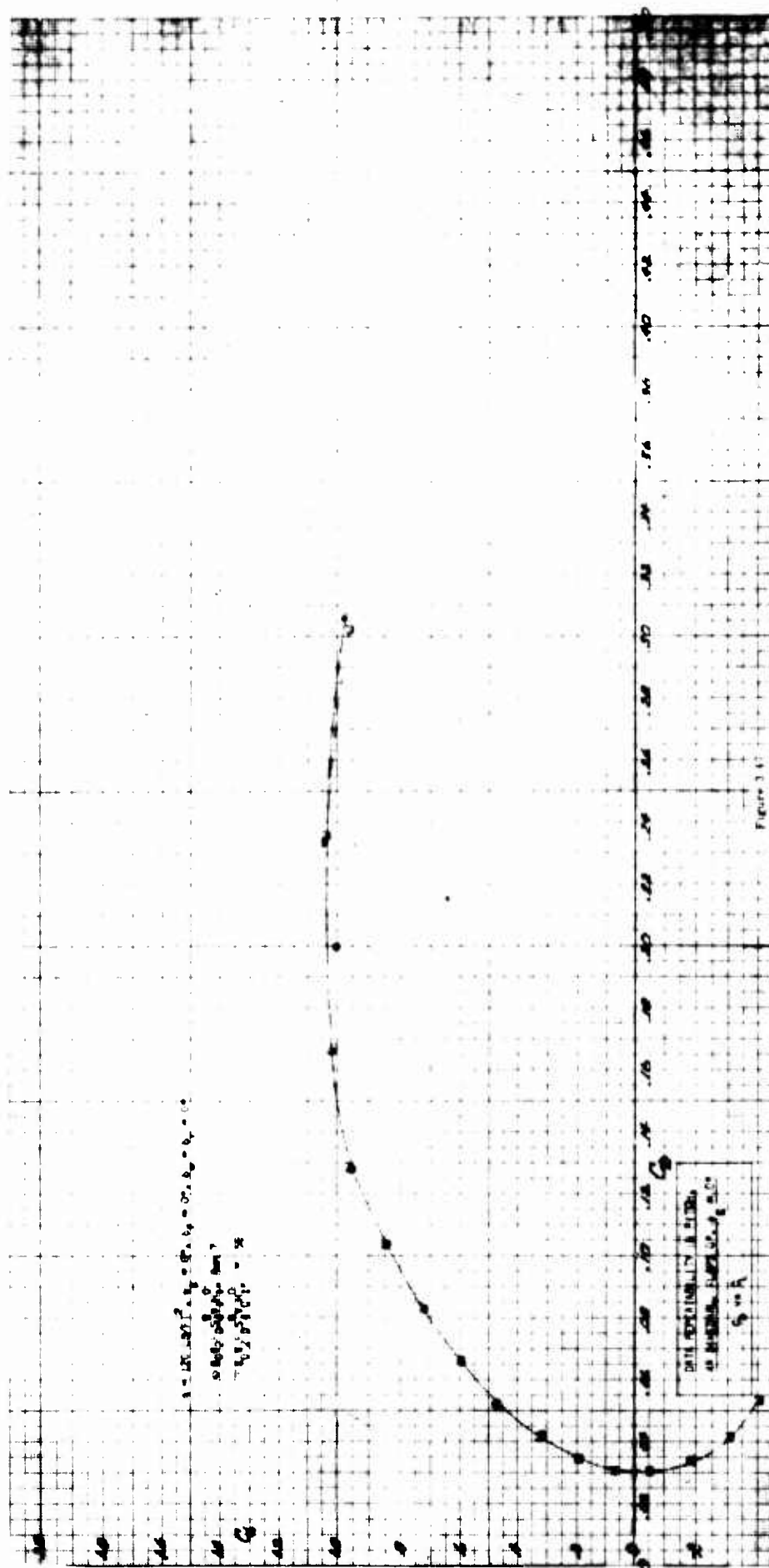
8

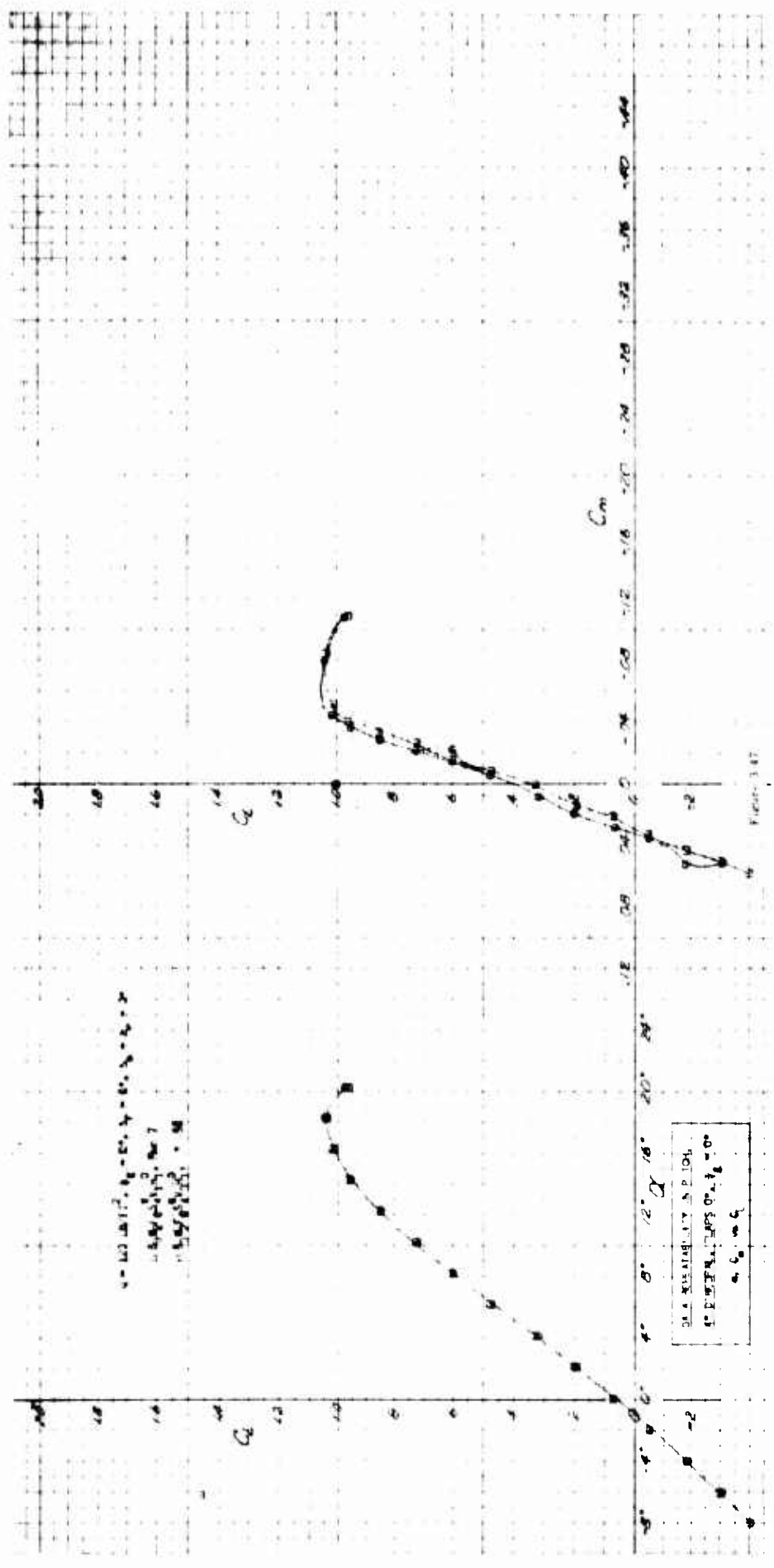


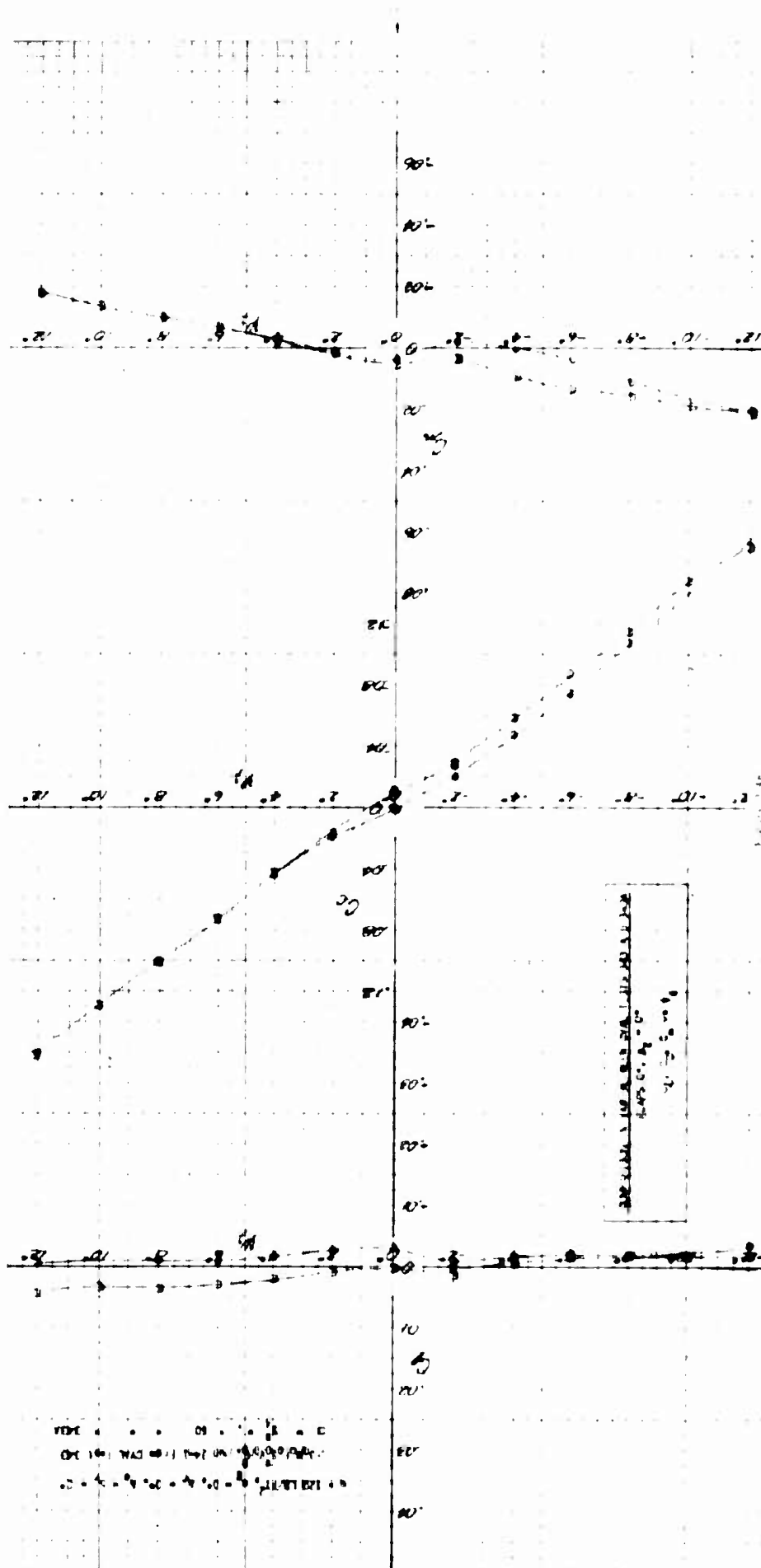
0.5 1.0

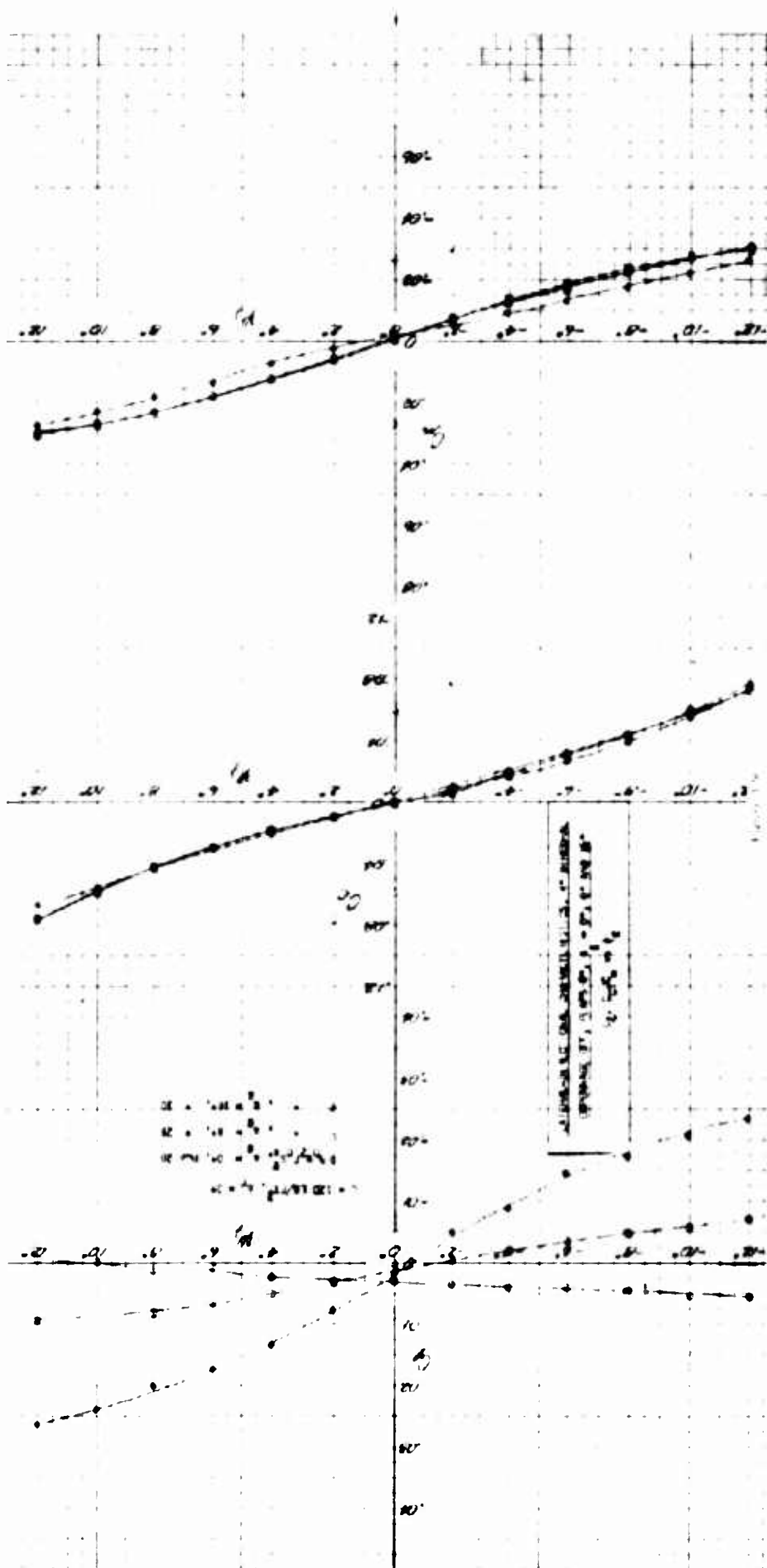


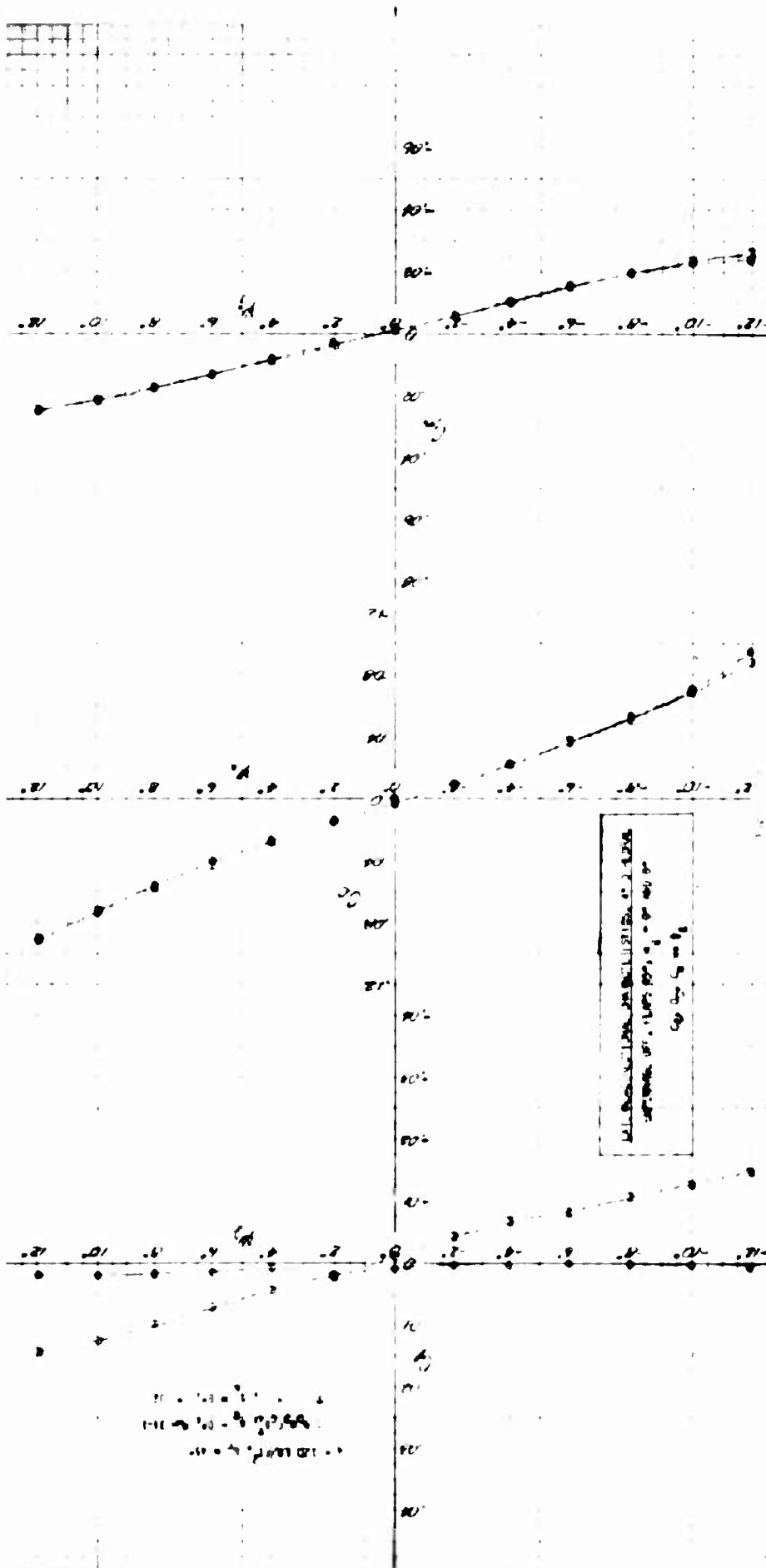


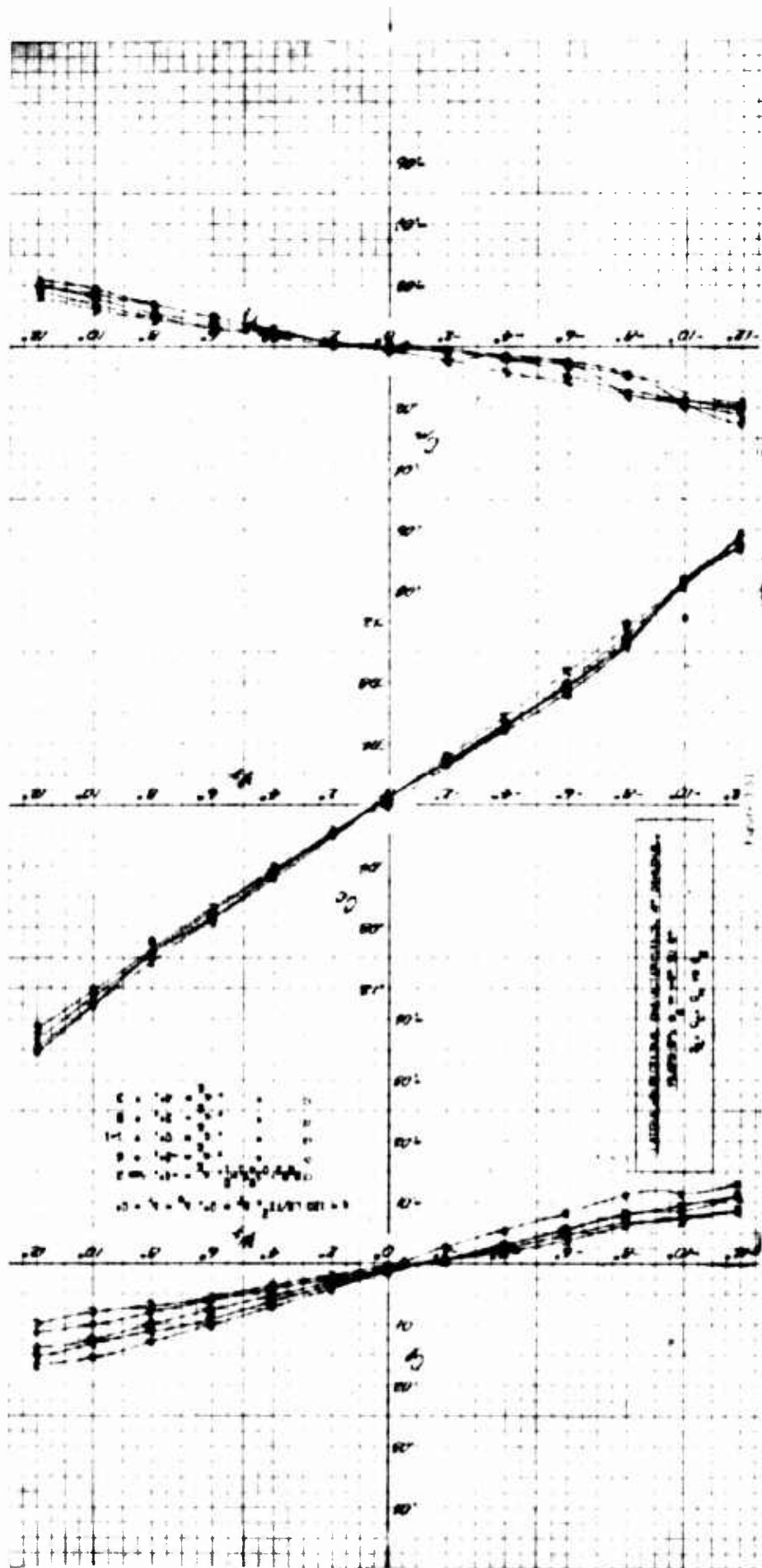


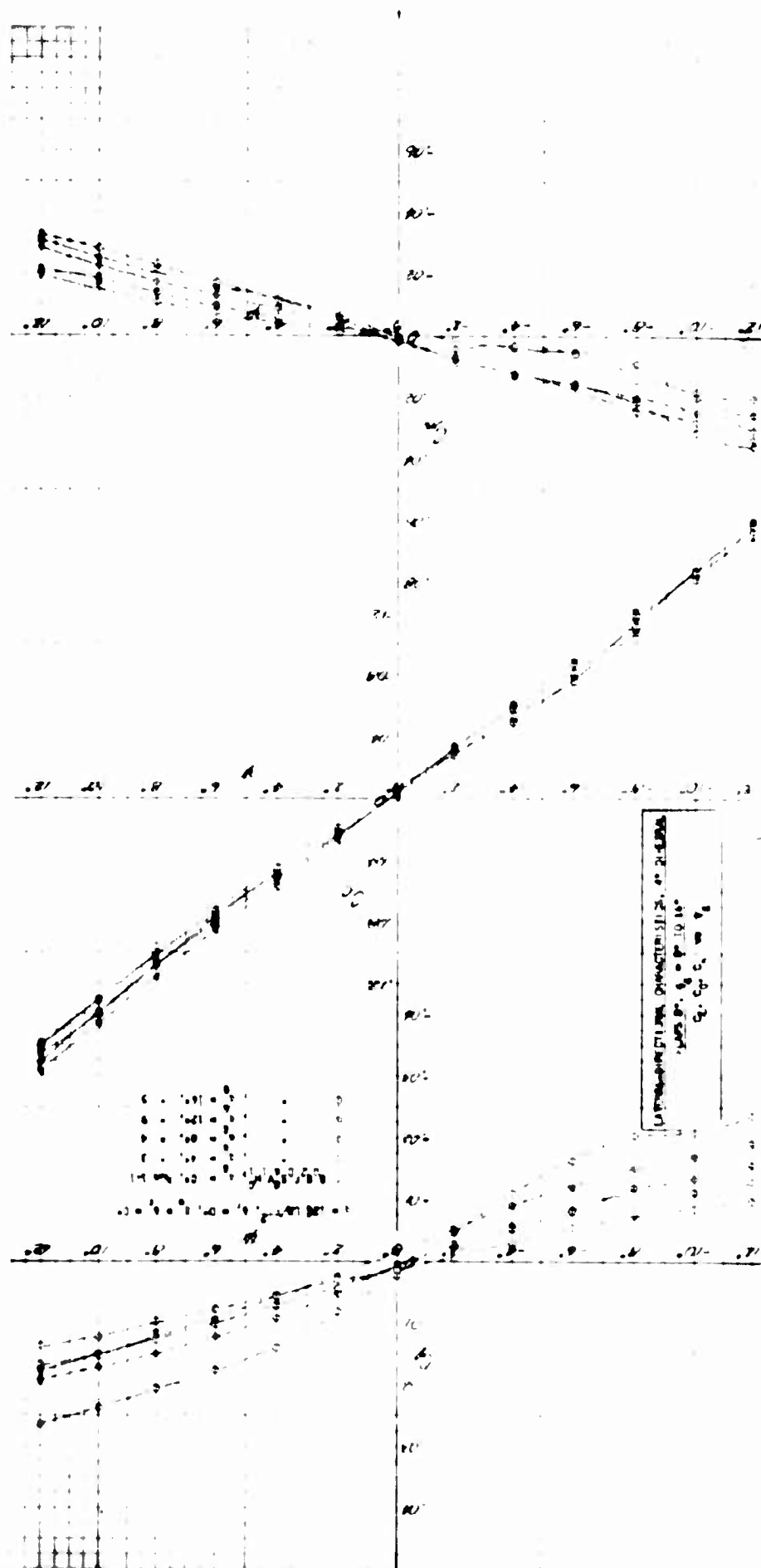


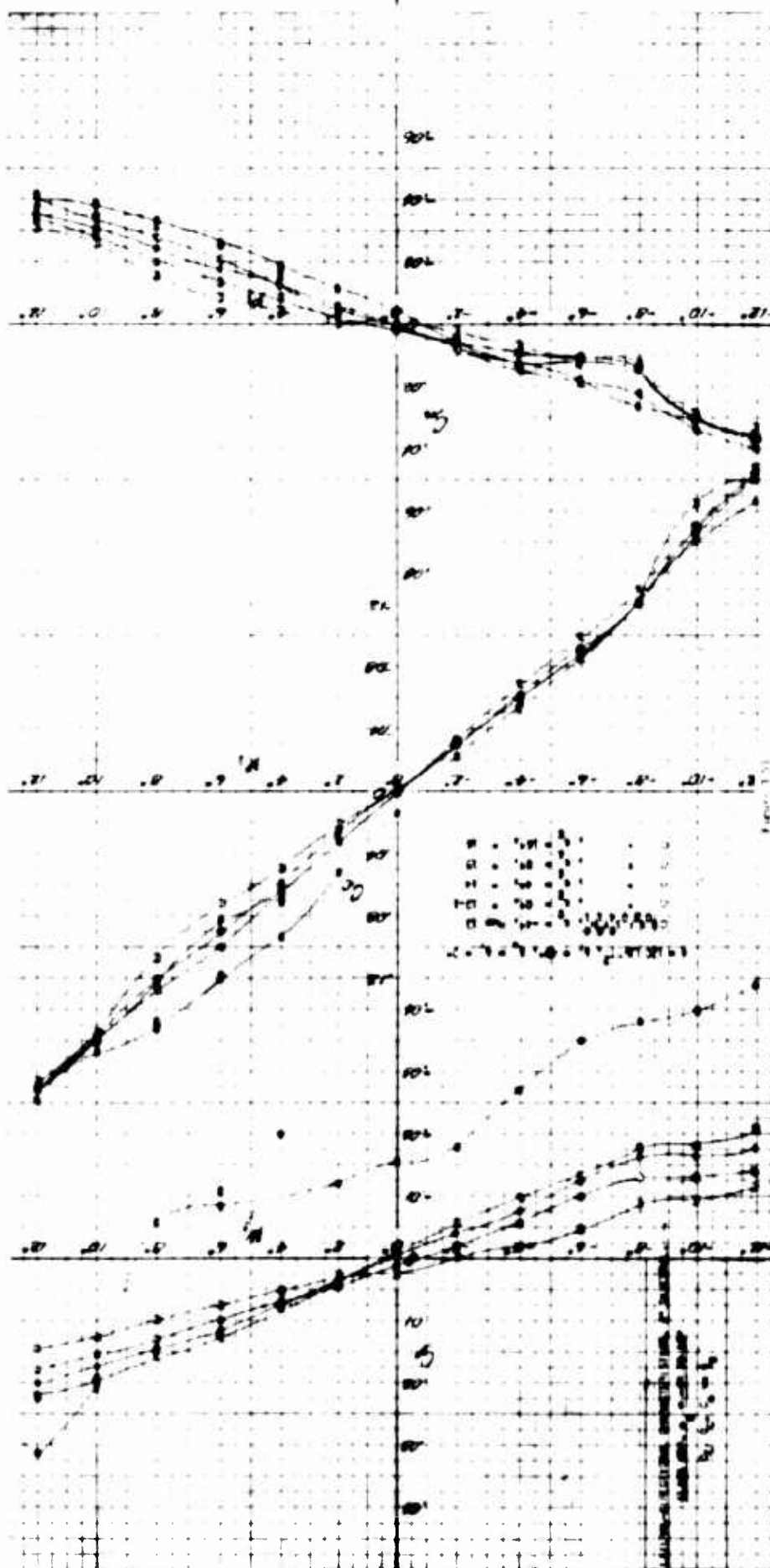


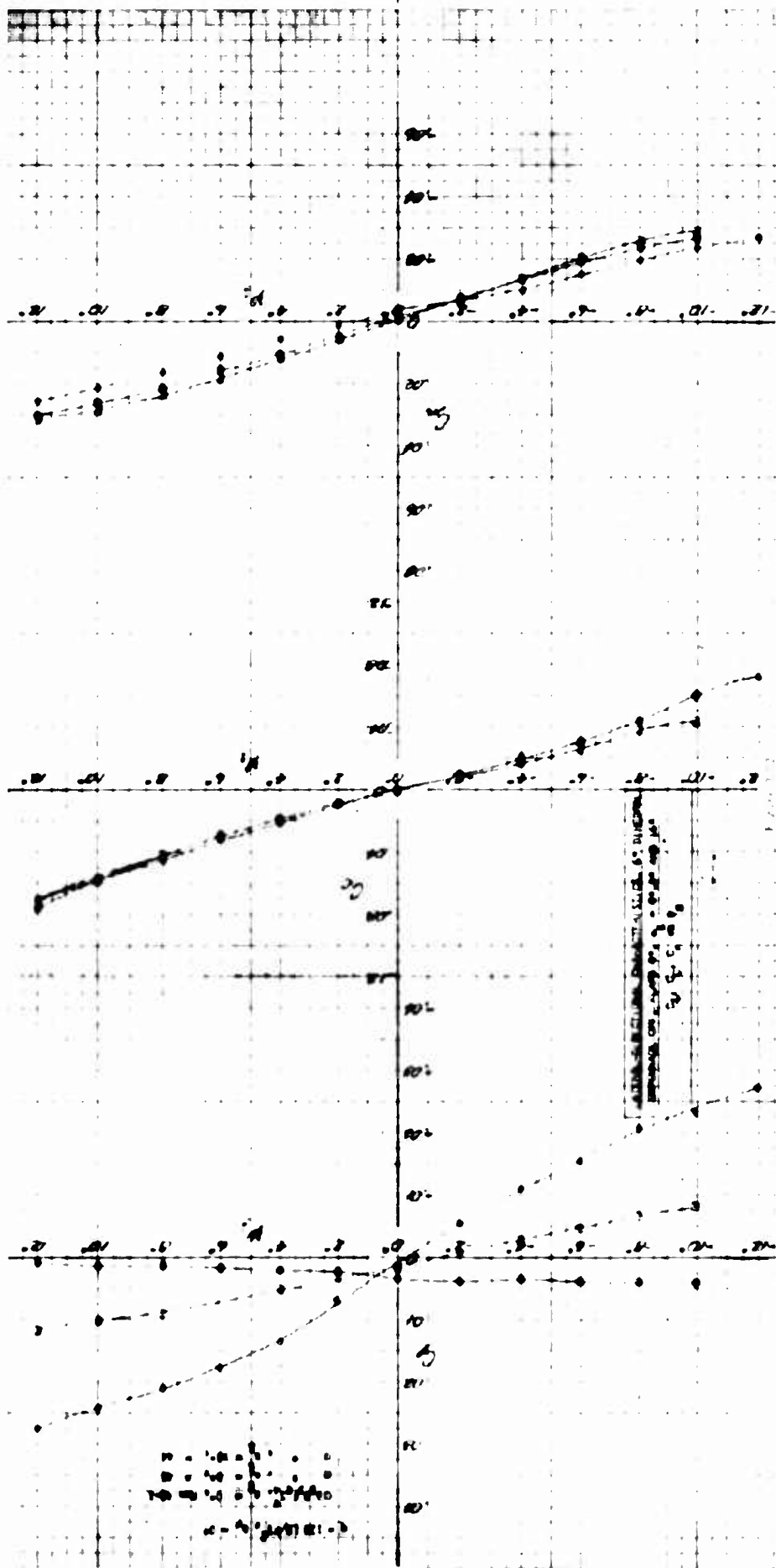


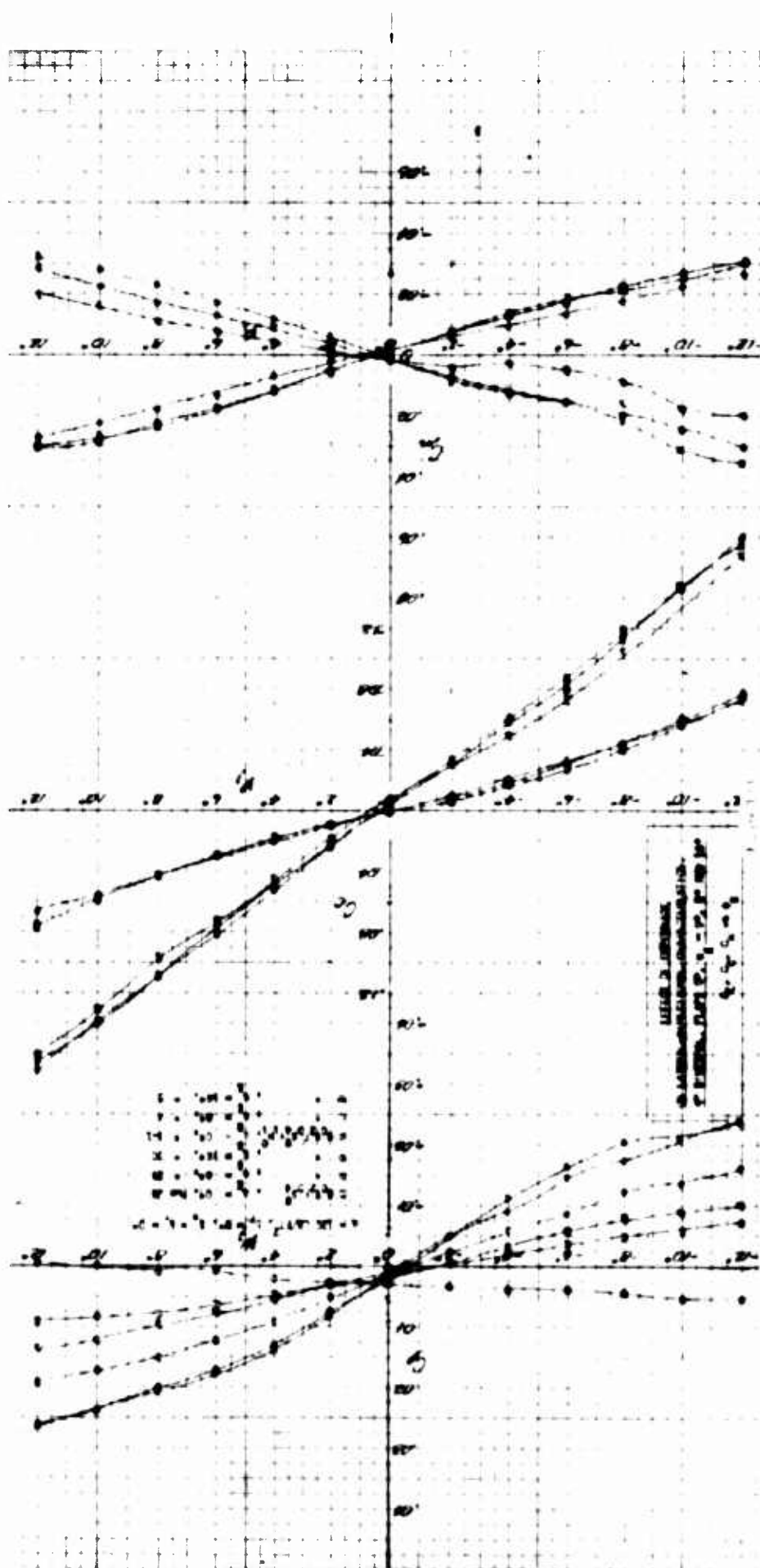


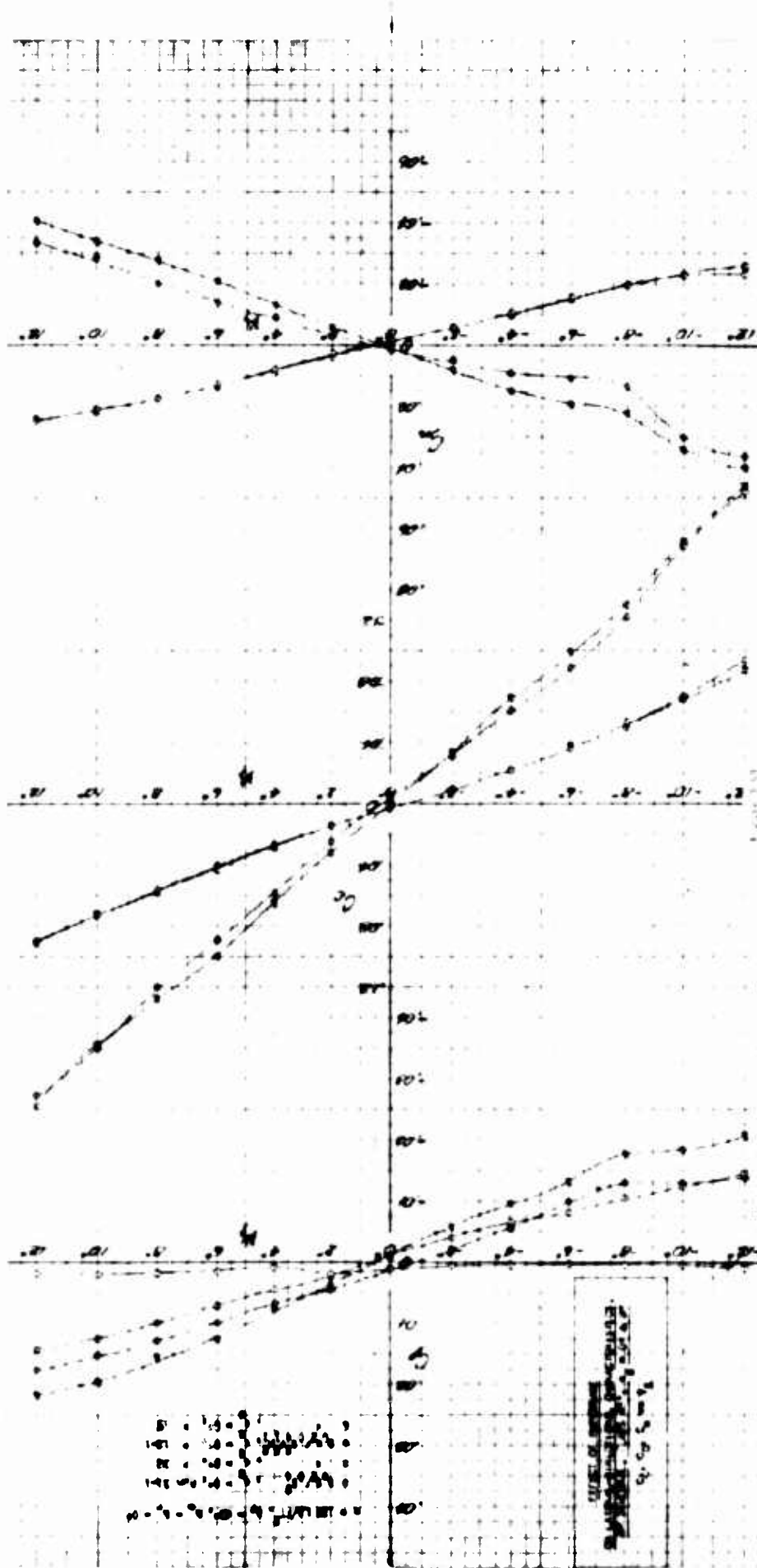


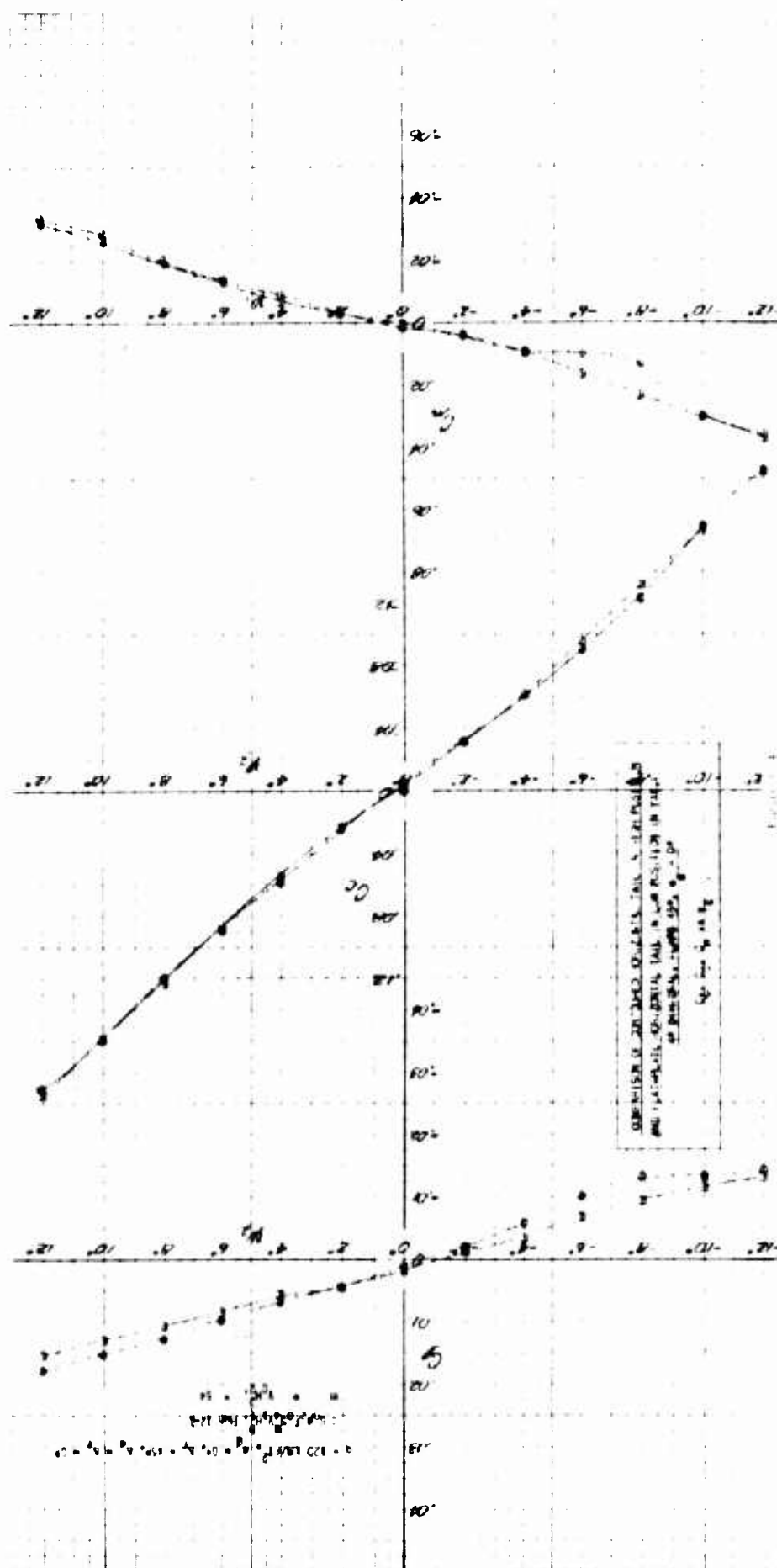












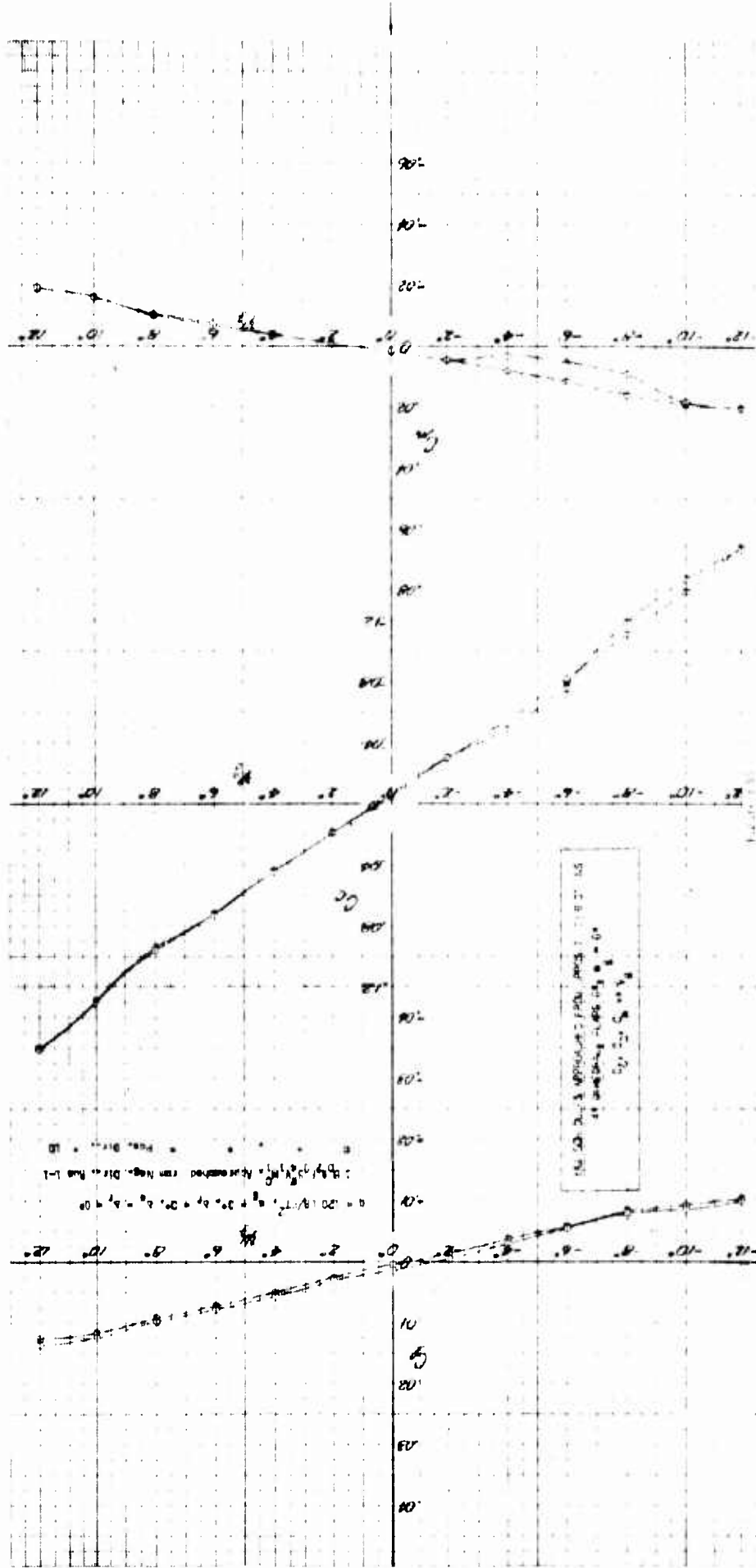


TABLE 3.4
PHASE 2 TESTS

TABULATED FORCE AND MOMENT COEFFICIENTS
STABILITY AXES

11/19/62	11/19/62
120.0	120.0

Pi	α_i	α	C_L	C_0	C_r	ψ_i	ψ	C_s	C_f	C_c
3	.00	.03	.120	.0232	.037-	12.02-	12.02-	.0202	.0098-	.167-
4	.00	.03	.104	.0248	.022-	10.02-	10.02-	.0180	.0083-	.147-
5	.00	.03	.097	.0325	.010-	8.03-	8.03-	.0090	.0079-	.104-
6	.00	.02	.089	.0343	.003	6.02-	6.02-	.0050	.0055-	.076-
7	.00	.02	.082	.0348	.001	6.02-	6.02-	.0048	.0056-	.072-
8	.00	.02	.090	.0264	.005-	8.03-	8.03-	.0162	.0074-	.119-
9	.00	.02	.093	.0337	.007-	6.02-	6.02-	.0058	.0053-	.077-
10	.00	.02	.078	.0340	.014	4.02-	4.02-	.0030	.0030-	.049-
11	.00	.02	.065	.0309	.027	2.03-	2.03-	.0043	.0005-	.030-
12	.00	.02	.065	.0311	.027	.00	.00	.0014	.0014	.006-
13	.00	.02	.068	.0310	.030	2.00	2.00	.0009-	.0030	.019
14	.00	.02	.069	.0300	.030	2.00	2.00	.0008-	.0030	.019
15	.00	.01	.062	.0312	.027	4.03	4.03	.0039-	.0057	.045
17	.00	.02	.076	.0304	.015	6.01	6.01	.0075-	.0078	.073
18	.00	.02	.087	.0296	.006-	8.00	8.00	.0107-	.0098	.096
19	.00	.03	.095	.0276	.011-	10.03	10.03	.0160-	.0124	.131
22	.00	.03	.115	.0251	.029-	12.01	12.01	.0194-	.0137	.161

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

DOWN SPEED WIND TUNNEL FINAL DATA SHEET													STAB		TEST 343-1		DATE 11/19/62	
P1	α_1	α	C_L	C_D	FORCE AREA			MOMENT AREA			ψ_1	ψ	C_D	C_L	C_C			
					C_D	C_L	C_M	C_D	C_L	C_M								
3	4.02-	4.06-	.130-	.0243	.010-	12.02-	12.02-	.0181	.0086-	.168-								
4	4.02-	4.06-	.143-	.0740	.000-	10.00	10.00	.0154	.0069-	.122-								
5	4.02-	4.06-	.146-	.0330	.014	8.02-	8.02-	.0099	.0063-	.105-								
6	4.02-	4.07-	.159-	.0348	.020	6.03-	6.03-	.0063	.0037-	.077-								
8	4.02-	4.07-	.164-	.0353	.039	4.02-	4.02-	.0035	.0015-	.052-								
10	4.02-	4.07-	.168-	.0348	.044	2.03-	2.03-	.0013	.0002-	.027-								
11	4.02-	4.07-	.176-	.0345	.049	.00	.00	.0000	.0005	.004-								
12	4.02-	4.07-	.183-	.0338	.049	2.02	2.02	.0002-	.0020	.016								
13	4.02-	4.07-	.177-	.0341	.046	4.01	4.01	.0029-	.0037	.040								
14	4.02-	4.07-	.170-	.0336	.037	6.01	6.01	.0061-	.0056	.067								
16	4.02-	4.07-	.166-	.0336	.026	8.02	8.02	.0085-	.0070	.089								
17	4.02-	4.06-	.157-	.0304	.014	10.01	10.01	.0120-	.0080	.121								
20	4.02-	4.06-	.146-	.0283	.004	12.01	12.01	.0162-	.0099	.146								

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_1	α	C_L	C_D	FORCE AXIS		MOMENT AXIS		STAB		NUM		DATE	
					C_m	ψ_m	C_n	ψ_n	C_l	C_c	343-1	3	11/19/62	120.0
3	4.03	4.14	.361	.0347	.060-	12.03-	.0253	12.03-	.0129-	.177-				
4	4.03	4.14	.354	.0373	.045-	10.00-	.0198	10.00-	.0112-	.142-				
5	4.03	4.13	.340	.0455	.037-	8.03-	.0091	8.03-	.0111-	.107-				
6	4.03	4.13	.340	.0466	.024-	6.02-	.0060	6.02-	.0082-	.078-				
7	4.03	4.13	.332	.0460	.009-	4.03-	.0039	4.03-	.0052-	.054-				
8	4.03	4.13	.330	.0465	.002-	2.02-	.0010	2.02-	.0027-	.028-				
9	4.03	4.13	.328	.0435	.002	.00	.0014-	.00	.0009	.002-				
10	4.03	4.13	.332	.0410	.003	2.01	.0017-	2.01	.0044	.020				
11	4.03	4.13	.327	.0411	.001-	4.03	.0060-	4.03	.0072	.048				
12	4.03	4.13	.327	.0399	.011-	6.01	.0096-	6.01	.0103	.074				
13	4.03	4.13	.338	.0387	.026-	8.01	.0134-	8.01	.0129	.103				
16	4.03	4.14	.353	.0371	.042-	10.01	.0186-	10.01	.0154	.131				
17	4.03	4.14	.363	.0374	.059-	12.01	.0213-	12.01	.0167	.158				

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FLOW SPEED WIND TUNNEL FINAL DATA SHEET											PLIST	343-1	DATE	11/19/62
Pt	α_L	α	C_L	C_D	MOMENT COEFFS		ψ	C_H	C_I	C_{θ}	SWR	4-0	1	120.0
					C_m	ψ_f								
3	8.03	8.22	.616	.0600	.086-	12.03-	12.03-	.0304	.0158-	.180-				
4	8.03	8.22	.609	.0620	.068-	10.03-	10.03-	.0247	.0134-	.145-				
5	8.04	8.23	.614	.0623	.049-	8.02-	8.02-	.0199	.0121-	.117-				
6	8.05	8.23	.602	.0633	.042-	6.00-	6.00-	.0154	.0084-	.087-				
8	8.05	8.23	.599	.0637	.033-	4.03-	4.03-	.0123	.0058-	.061-				
9	8.04	8.22	.602	.0645	.016-	2.02-	2.02-	.0074	.0022-	.034-				
11	8.03	8.21	.590	.0656	.020-	.01	.01	.0020	.0010	.004-				
12	8.04	8.22	.597	.0655	.024-	2.01	2.01	.0033-	.0053	.023				
15	8.03	8.21	.597	.0652	.025-	4.01	4.01	.0089-	.0093	.052				
16	8.03	8.21	.599	.0631	.031-	6.01	6.01	.0129-	.0123	.081				
17	8.03	8.21	.600	.0625	.046-	8.01	8.01	.0172-	.0151	.109				
18	8.03	8.22	.613	.0621	.068-	10.01	10.01	.0224-	.0172	.138				
19	8.04	8.23	.623	.0636	.082-	12.02	12.02	.0284-	.0192	.171				

LOW SPEED WIND TUNNEL FINAL DATA SHEET	POWER AXIS	STARS	REV	DATE
			343-1	11/10/62
			5-0	120.0

Pt	α_f	α	C_L	C_D	C_m	ψ_f	ψ	C_n	C_f	C_c
4	16.04	16.37	1.050	.1646	.097-	12.02-	12.02-	.0357	.0237-	.174-
5	16.03	16.35	1.040	.1645	.084-	10.00-	10.00-	.0314	.0210-	.148-
6	16.04	16.36	1.037	.1673	.077-	8.04-	8.04-	.0215	.0204-	.112-
7	16.04	16.36	1.030	.1723	.073-	6.02-	6.02-	.0159	.0163-	.082-
8	16.04	16.36	1.016	.1683	.066-	4.33-	4.02-	.0120	.0111-	.058-
9	16.04	16.36	1.021	.1670	.051-	2.02-	2.02-	.0086	.0048-	.032-
10	16.03	16.35	1.019	.1657	.045-	.00	.00	.0008	.0024	.004-
11	16.04	16.36	1.019	.1661	.045-	2.02	2.02	.0065-	.0083	.024
12	16.04	16.36	1.026	.1644	.048-	4.00	4.00	.0119-	.0141	.049
13	16.04	16.36	1.031	.1633	.055-	6.01	6.01	.0172-	.0177	.078
14	16.04	16.36	1.033	.1618	.062-	8.01	8.01	.0231-	.0207	.108
15	16.04	16.36	1.040	.1608	.075-	10.01	10.01	.0281-	.0238	.140
16	16.04	16.37	1.048	.1674	.089-	12.01	12.01	.0324-	.0264	.168

LOW SPEED WIND TUNNEL FINAL DATA SHEET

LOW SPEED WIND TUNNEL FINAL DATA SHEET														
Pt	α_f	α	FORCE AXES			STAB			TEST	343-1	DATE	11/19/62		
			C_L	C_D	C_m	ψ_L	ψ	C_n					C_L	C_C
4	2.02-	2.02-	.004-	.0210	.037-	12.02-	12.02-	.0197	.0083-			120.0		
5	2.02-	2.02-	.022-	.0247	.009-	10.03-	10.03-	.0175	.0072-					
6	2.02-	2.02-	.024-	.0266	.003	8.02-	8.02-	.0153	.0067-					
7	2.02-	2.03-	.036-	.0294	.015	6.00-	6.00-	.0097	.0045-					
9	2.01-	2.02-	.047-	.0315	.027	4.05-	4.05-	.0044	.0025-					
10	2.02-	2.03-	.058-	.0319	.036	2.02-	2.02-	.0017	.0000-					
11	2.02-	2.03-	.056-	.0308	.035	.00	.00	.0003	.0012					
12	2.02-	2.03-	.059-	.0301	.040	2.01	2.01	.0008-	.0025					
13	2.02-	2.03-	.059-	.0301	.035	4.02	4.02	.0034-	.0046					
14	2.02-	2.03-	.053-	.0297	.027	6.02	6.02	.0068-	.0062					
15	2.02-	2.03-	.049-	.0300	.015	8.02	8.02	.0093-	.0082					
16	2.03-	2.04-	.034-	.0260	.006	10.00	10.00	.0136-	.0100					
17	2.02-	2.02-	.018-	.0248	.015-	12.01	12.01	.0177-	.0114					

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PORT 1271										STAB		STAB		DATE		TIME		11/19/42	
MAGNET 4411										MAGNET 4411		MAGNET 4411		7-9		1		120.0	
P1	α_t	α	C_L	C_D	C_M	ψ_t	ψ	C_L	C_D	C_L	C_D	C_L	C_D	C_L	C_D	C_L	C_D	C_L	C_D
2	6.02-	6.11-	.311-	.0413	.051	.00-	.00-	.0002	.0027	.0002	.0027	.0002	.0027	.0002	.0027	.0002	.0027	.0002	.0027
4	4.00-	4.05-	.185-	.0333	.052	.00-	.00-	.0010	.0027	.0010	.0027	.0010	.0027	.0010	.0027	.0010	.0027	.0010	.0027
5	2.02-	2.03-	.052-	.0301	.035	.00-	.00-	.0010	.0016	.0010	.0016	.0010	.0016	.0010	.0016	.0010	.0016	.0010	.0016
6	.00	.02	.065	.0302	.028	.00-	.00-	.0012	.0019	.0012	.0019	.0012	.0019	.0012	.0019	.0012	.0019	.0012	.0019
7	2.04	2.10	.197	.0340	.019	.00-	.00-	.0015	.0014	.0015	.0014	.0015	.0014	.0015	.0014	.0015	.0014	.0015	.0014
8	4.04	4.13	.315	.0421	.008	.00-	.00-	.0019	.0016	.0019	.0016	.0019	.0016	.0019	.0016	.0019	.0016	.0019	.0016
9	6.05	6.19	.474	.0517	.006-	.00-	.00-	.0017	.0015	.0017	.0015	.0017	.0015	.0017	.0015	.0017	.0015	.0017	.0015
10	8.03	8.21	.594	.0656	.023-	.00-	.00-	.0016	.0014	.0016	.0014	.0016	.0014	.0016	.0014	.0016	.0014	.0016	.0014
11	10.04	10.26	.721	.0829	.022-	.00-	.00-	.0014	.0011	.0014	.0011	.0014	.0011	.0014	.0011	.0014	.0011	.0014	.0011
12	12.04	12.30	.843	.1037	.029-	.02-	.02-	.0011	.0005-	.0011	.0005-	.0011	.0005-	.0011	.0005-	.0011	.0005-	.0011	.0005-
13	14.03	14.32	.951	.1281	.037-	.02-	.02-	.0013	.0005-	.0013	.0005-	.0013	.0005-	.0013	.0005-	.0013	.0005-	.0013	.0005-
14	16.03	16.35	1.017	.1663	.045-	.02-	.02-	.0009	.0025	.0009	.0025	.0009	.0025	.0009	.0025	.0009	.0025	.0009	.0025
15	18.04	18.36	1.043	.2337	.080-	.02-	.02-	.0036-	.0021-	.0036-	.0021-	.0036-	.0021-	.0036-	.0021-	.0036-	.0021-	.0036-	.0021-
17	20.03	20.33	.973	.3066	.108-	.02-	.02-	.0013-	.0027-	.0013-	.0027-	.0013-	.0027-	.0013-	.0027-	.0013-	.0027-	.0013-	.0027-

LOW SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_z	α	STAB				TEST 343-1				DATE 11/19/52	
			STAB		STAB		STAB		STAB		STAB	
			C_D	C_L	C_M	ψ	ψ	C_D	C_L	C_M	ψ	C_D
4	2.04	2.11	.0265	.238	.047	12.03-	12.03-	.0225	.0107-			.174-
5	2.05	2.12	.0302	.232	.037-	10.00-	10.00-	.0201	.0093-			.143-
6	2.05	2.12	.0312	.222	.022-	8.03-	8.03-	.0167	.0081-			.115-
8	2.04	2.10	.0333	.208	.005-	6.02-	6.02-	.0117	.0055-			.087-
10	2.04	2.10	.0346	.205	.004-	4.02-	4.02-	.0093	.0030-			.057-
11	2.04	2.09	.0351	.189	.016	2.03-	2.03-	.0054	.0003-			.032-
13	2.05	2.11	.0344	.191	.020	.00-	.00	.0012	.0014			.005-
15	2.05	2.10	.0344	.190	.018	2.01	2.01	.0019-	.0039			.012
17	2.04	2.10	.0352	.198	.009	4.03	4.03	.0053-	.0068			.044
18	2.04	2.10	.0336	.204	.001	6.02	6.00	.0006-	.0093			.076
19	2.04	2.10	.0334	.214	.014-	8.02	8.02	.0130-	.0112			.099
20	2.05	2.12	.0326	.223	.028-	10.01	10.01	.0172-	.0133			.123
21	2.04	2.11	.0340	.242	.049-	12.01	12.01	.0194-	.0152			.145

LOW SPEED WIND TUNNEL FINAL DATA SHEET

P1	α_1	α	MOMENT AXES				STAB				TEST	343-1	DATE	11/19/52
			C_L	C_D	C_m	ψ_L	ψ_D	ψ	C_L	C_D				
2	12.03	12.30	.872	.1012	.102	12.02	12.02	12.02	.0335	.0191				120.0
4	12.04	12.31	.861	.1006	.083	10.01	10.01	10.01	.0278	.0160				.148
6	12.04	12.30	.844	.1002	.061	8.03	8.03	8.03	.0245	.0151				.123
5	12.03	12.29	.847	.1020	.052	6.02	6.02	6.02	.0169	.0120				.092
7	12.07	12.29	.849	.1027	.041	4.02	4.02	4.02	.0126	.0089				.041
8	12.03	12.29	.841	.1038	.033	2.03	2.03	2.03	.0072	.0052				.033
9	12.04	12.30	.839	.1041	.030	.02	.02	.02	.0004	.0014				.001
10	12.04	12.30	.835	.1034	.032	2.00	2.00	2.00	.0055	.0025				.027
11	12.07	12.29	.840	.1032	.037	4.01	4.01	4.01	.0113	.0058				.057
12	12.04	12.30	.840	.1024	.049	6.03	6.03	6.03	.0152	.0096				.085
13	12.03	12.29	.849	.1002	.059	8.01	8.01	8.01	.0211	.0118				.116
14	12.04	12.31	.861	.1004	.077	10.01	10.01	10.01	.0250	.0153				.145
15	12.03	12.30	.871	.1021	.092	12.01	12.01	12.01	.0310	.0177				.177

LOW SPEED WIND TUNNEL FINAL DATA SHEET

LOW SPEED WIND TUNNEL FINAL DATA SHEET											
P:	α_i	α	FORCE AXIS			STAB		REF	DATE	11/19/52	
			C_L	C_D	MOMENT AXIS	C_m	ψ_i				ψ
5	.01-	.05	.238	.0240		.011-	12.02	12.02	.0180-	.0125	.160
6	.01-	.06	.244	.0201		.011-	10.00	10.00	.0161-	.0117	.131
8	.01-	.01	.080	.0296		.002	8.00	8.00	.0101-	.0092	.094
9	.01-	.01	.068	.0296		.017	6.02	6.02	.0069-	.0073	.072
11	.01-	.01	.072	.0307		.022	4.03	4.03	.0037-	.0050	.044
12	.01-	.01	.070	.0306		.024	2.02	2.02	.0009-	.0033	.019
13	.01-	.01	.074	.0308		.024	.02-	.02-	.0017	.0005	.005-
14	.01-	.01	.078	.0308		.021	2.02-	2.02-	.0051	.0012-	.030-
15	.01-	.01	.082	.0305		.014	4.01-	4.01-	.0079	.0037-	.053-
16	.01-	.01	.085	.0296		.006	6.01-	6.01-	.0115	.0056-	.082-
17	.01-	.02	.096	.0279		.007-	8.02-	8.02-	.0165	.0092-	.111-
18	.01-	.02	.104	.0270		.021-	10.01-	10.01-	.0184	.0092-	.130-
19	.01-	.02	.117	.0236		.039-	12.03-	12.03-	.0203	.0103-	.165-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											FORCE AXES		STAB		TEST		DATE			
											MOMENT AXES		STAB		NO.		11-0		11/19/62	
Pt	α_i	α	C_L	C_D	C_m	ψ_L	ψ	C_N	C_L	C_C										
2	8.00-	8.01-	.060-	.0737	.007	.00	.00	.0031-	.0042	.000-										
3	6.03-	6.01-	.077	.0730	.004-	.00	.00	.0018-	.0034	.003-										
5	4.01-	3.94-	.224	.0775	.021-	.00	.00	.0000	.0029	.005-										
6	2.01-	1.90-	.355	.0860	.034-	.00	.00	.0007	.0027	.002-										
7	.02-	.13	.494	.0957	.046-	.00	.00	.0016	.0019	.003-										
8	2.01	2.21	.644	.1116	.060-	.01	.01	.0021	.0011	.004-										
9	4.02	4.26	.795	.1318	.071-	.01	.01	.0020	.0018	.004-										
10	6.00	6.29	.924	.1555	.076-	.01	.01	.0016	.0003	.001-										
12	8.01	8.34	1.055	.1634	.081-	.00	.00	.0015	.0000-	.001-										
13	10.01	10.38	1.197	.2173	.084-	.00	.00	.0018	.0003-	.002-										
14	12.01	12.42	1.330	.2524	.084-	.00	.00	.0021	.0003-	.003-										
15	14.02	14.47	1.440	.3017	.078-	.00	.00	.0020	.0007	.005-										
16	16.01	16.46	1.433	.3741	.074-	.00	.00	.0029-	.0213-	.019										
17	18.02	18.44	1.351	.4418	.083-	.00	.00	.0055	.0307-	.019										
18	20.02	20.44	1.345	.5000	.121-	.00	.00	.0010	.0103-	.018-										

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											
FORCE AXES											
MOMENT AXES											
STAB											
STAB											
Pt	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_D	C_L	DATE	TIME
4	.01-	.16	.541	.0908	.137-	12.02-	12.02-	.0364	.0138-	11/19/42	120.0
5	.01-	.16	.541	.0908	.113-	10.02-	10.02-	.0302	.0130-		
6	.01-	.15	.532	.0993	.095-	8.03-	8.03-	.0135	.0130-		
8	.01-	.15	.526	.0981	.082-	6.03-	6.03-	.0104	.0099-		
9	.01-	.15	.514	.0946	.062-	4.02-	4.02-	.0092	.0056-		
10	.01-	.14	.502	.0965	.060-	2.02-	2.02-	.0044	.0018-		
11	.01-	.14	.494	.0955	.046-	.00	.00	.0019	.0011		
12	.01-	.14	.506	.0964	.051-	2.02	2.02	.0031-	.0046		
13	.01-	.15	.512	.0950	.057-	4.01	4.01	.0097-	.0068		
14	.01-	.15	.520	.0946	.063-	6.02	6.02	.0135-	.0099		
15	.01-	.15	.528	.0935	.083-	8.01	8.01	.0202-	.0129		
16	.01-	.15	.539	.0915	.104-	10.00	10.00	.0285-	.0153		
17	.01-	.16	.551	.0919	.129-	12.02	12.02	.0333-	.0178		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES STAB
MOMENT AXES STAB

TEST 343-1
RUN 13-0

DATE 11/10/62
120.0

Pt	α_i	α	C_L	C_D	C_H	ψ_i	ψ	C_n	C_f	C_c
2	4.02-	3.94-	.283	.0695	.	12.00-	12.00-	.0329	.0113-	.200-
3	4.02-	3.94-	.271	.0675	.081-	10.00-	10.00-	.0286	.0091-	.195-
4	4.02-	3.94-	.263	.0801	.068-	8.03-	8.03-	.0122	.0088-	.121-
5	4.02-	3.95-	.243	.0775	.046-	6.03-	6.03-	.0108	.0046-	.090-
6	4.02-	3.95-	.232	.0765	.034-	4.00-	4.00-	.0069	.0016-	.047-
7	4.02-	3.94-	.222	.0774	.023-	2.03-	2.03-	.0020	.0003-	.030-
9	4.03-	3.97-	.217	.0777	.018-	.02	.02	.0010-	.0026	.003-
10	4.02-	3.96-	.220	.0763	.018-	2.00	2.00	.0002-	.0027	.020
11	4.02-	3.96-	.220	.0767	.023-	4.00	4.00	.0045-	.0051	.040
13	4.02-	3.95-	.235	.0780	.030-	6.01	6.01	.0084-	.0074	.071
14	4.02-	3.95-	.244	.0762	.054-	8.02	8.02	.0157-	.0077	.105
15	4.03-	3.95-	.258	.073-	.072-	10.00	10.00	.0261-	.0125	.154
16	4.02-	3.94-	.275	.0732	.095-	12.01	12.01	.0300-	.0144	.195

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_t	α	FORCE AXIS				MOMENT AXIS				ψ	RUN			DATE	11/19/42	120.0
			C_L	C_D	C_m	ψ_t	C_L	C_m	C_n	C_x	C_z	C_n	C_x	C_z			
3	4.01	4.26	.815	.1251	.148-	12.02-	.0176-	.0373	.0176-	.0176-	.0176-	.0176-	.0176-	.0176-	.0176-	.0176-	.0176-
4	4.01	4.26	.811	.1250	.139-	10.02-	.0162-	.0301	.0162-	.0162-	.0162-	.0162-	.0162-	.0162-	.0162-	.0162-	.0162-
6	4.01	4.26	.800	.1332	.120-	8.02-	.0151	.0151	.0151	.0151	.0151	.0151	.0151	.0151	.0151	.0151	.0151
7	4.01	4.25	.791	.1308	.100-	6.00-	.0132	.0132	.0132	.0132	.0132	.0132	.0132	.0132	.0132	.0132	.0132
8	4.01	4.25	.793	.1284	.081-	4.03-	.0076-	.0126	.0076-	.0076-	.0076-	.0076-	.0076-	.0076-	.0076-	.0076-	.0076-
9	4.01	4.25	.781	.1307	.073-	2.00-	.0063	.0063	.0063	.0063	.0063	.0063	.0063	.0063	.0063	.0063	.0063
10	4.01	4.25	.781	.1307	.064-	.00-	.0009	.0009	.0009	.0009	.0009	.0009	.0009	.0009	.0009	.0009	.0009
11	4.01	4.25	.783	.1303	.072-	2.01	.0034	.0034	.0034	.0034	.0034	.0034	.0034	.0034	.0034	.0034	.0034
12	4.01	4.25	.783	.1292	.078-	4.03	.0078	.0078	.0078	.0078	.0078	.0078	.0078	.0078	.0078	.0078	.0078
13	4.01	4.25	.789	.1280	.091-	6.01	.0115	.0115	.0115	.0115	.0115	.0115	.0115	.0115	.0115	.0115	.0115
14	4.01	4.26	.797	.1254	.108-	8.01	.0143	.0143	.0143	.0143	.0143	.0143	.0143	.0143	.0143	.0143	.0143
15	4.01	4.26	.810	.1253	.128-	10.02	.0173	.0173	.0173	.0173	.0173	.0173	.0173	.0173	.0173	.0173	.0173
16	4.01	4.26	.817	.1265	.140-	12.01	.0199	.0199	.0199	.0199	.0199	.0199	.0199	.0199	.0199	.0199	.0199

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											
FORCE AXES											
MOMENT AXES											
STAB											
STAB											
P1	α_f	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_I	C_C	DATE
2	8.01	8.35	1.094	.1748	.172	12.03	12.03	.0403	.0207	.208	11/19/52
3	8.01	8.35	1.086	.1757	.149	10.03	10.03	.0341	.0183	.171	12.0.0
4	8.01	8.29	.995	.1791	.108	8.02	8.02	.0223	.0177	.130	
5	8.02	8.35	1.065	.1787	.105	6.02	6.02	.0192	.0132	.090	
7	8.02	8.35	1.066	.1805	.091	4.03	4.03	.0149	.0097	.049	
8	8.01	8.34	1.063	.1822	.082	2.03	2.03	.0081	.0057	.033	
10	8.00	8.33	1.047	.1915	.080	.02	.02	.0025	.0011	.000	
11	8.01	8.34	1.058	.1821	.084	2.01	2.01	.0057	.0040	.012	
12	8.02	8.35	1.065	.1792	.089	4.02	4.02	.0172	.0091	.045	
13	8.02	8.35	1.070	.1762	.100	6.02	6.02	.0209	.0129	.100	
15	8.01	8.35	1.082	.1768	.116	8.01	8.01	.0276	.0150	.127	
18	8.01	8.35	1.089	.1772	.140	10.03	10.03	.0333	.0197	.197	
19	8.01	8.35	1.110	.1760	.166	12.01	12.01	.0406	.0219	.229	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET																
FORCE AXES																
STAB																
MOMENT AXES																
STAB																
PT	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_l	C_c	TEST	343-1	DATE	11/19/62		
2	16.02	16.49	1.497	.3753	.160	12.02	12.02	.0370	.0438	.186				120.0		
3	16.02	16.48	1.488	.3711	.179	10.03	10.03	.0316	.0397	.161						
4	16.02	16.48	1.464	.3663	.113	8.02	8.02	.0267	.0381	.120						
5	16.02	16.48	1.464	.3727	.10	6.03	6.03	.0176	.0350	.035						
6	16.02	16.47	1.460	.3683	.092	4.00	4.00	.0132	.0269	.054						
7	16.02	16.48	1.470	.3642	.080	2.03	2.03	.0054	.0178	.023						
8	16.02	16.48	1.454	.3657	.073	.00	.00	.0047	.0155	.014						
9	16.02	16.46	1.413	.3562	.082	2.03	2.03	.0117	.0180	.032						
11	16.02	16.49	1.407	.3520	.070	4.01	4.01	.0197	.0073	.070						
12	16.02	16.46	1.413	.3549	.113	6.02	6.02	.0265	.0109	.120						
13	16.02	16.47	1.440	.3564	.129	8.01	8.01	.0334	.0057	.152						
14	16.02	16.50	1.527	.3541	.127	10.00	10.00	.0381	.0170	.153						
15	16.02	16.50	1.538	.3570	.147	12.02	12.02	.0417	.0224	.171						
16	16.02	16.45	1.392	.3564	.100	4.02	4.02	.0157	.0240	.073						
17	16.03	16.47	1.411	.3583	.112	6.00	6.00	.0253	.0083	.117						
18	16.02	16.47	1.442	.3532	.127	8.01	8.01	.0319	.0073	.147						
20	16.02	16.45	1.514	.3641	.124	10.02	10.02	.0351	.0209	.157						
21	16.02	16.51	1.556	.3609	.151	12.01	12.01	.0380	.0313	.187						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_1	α	C_L	C_D	PORT AXIS		STAB		TRIP		DATE	
					MEASURED AXIS		STAB		DATE			
					ψ_s	ψ	C_n	C_t	C_n	C_t		
2	8.01-	8.02-	.035-	.0691	.00	.00	.052-	.0001	.0026	.0001	11/10/62	
3	6.03-	6.00-	.104	.0690	.00	.00	.066-	.0003	.0035	.0003		
4	4.01-	3.94-	.251	.0762	.00	.00	.065-	.0015	.0032	.0015		
5	2.03-	1.91-	.393	.0849	.00	.00	.102-	.0016	.0033	.0016		
6	.00-	.16	.528	.0966	.00	.00	.117-	.0015	.0030	.0015		
7	2.01	2.22	.673	.1127	.02	.02	.125-	.0012	.0023	.0012		
8	4.00	4.25	.809	.1324	.02	.02	.132-	.0003	.0013	.0003		
9	6.01	6.31	.953	.1539	.02	.02	.140-	.0007	.0007	.0007		
10	8.01	8.35	1.104	.1866	.02	.02	.147-	.0004	.0011	.0004		
11	10.02	10.40	1.229	.2200	.02	.02	.145-	.0011	.0008	.0011		
12	12.00	12.42	1.348	.2541	.02	.02	.144-	.0005	.0008	.0005		
13	14.03	14.40	1.464	.3057	.02	.02	.130-	.0009	.0010	.0009		
14	15.02	15.47	1.521	.3636	.02	.02	.133-	.0032	.0019	.0032		
17	18.01	18.45	1.413	.4533	.02	.02	.140-	.0051	.0024	.0051		
18	20.01	20.44	1.367	.5097	.02	.02	.165-	.0022	.0016	.0022		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													FORCE COEFFS		STAB		TEST	343-1	DATE	11/19/62
PT	α_L	α	C_L	C_D	C_m	ψ_L	ψ	INCLINOMETER COEFFS			STAB			TEST	343-1	DATE	11/19/62			
								C_n	C_f	C_c										
2	8.02-	8.02-	.009-	.0695	.112-	.01	.01	.0007	.0008	.006-							127.0			
3	6.02-	5.99-	.125	.0653	.120-	.00	.00	.0032	.0010	.021-										
4	4.02-	3.94-	.282	.0756	.141-	.00	.00	.0027	.0016	.010-										
5	2.00-	1.57-	.426	.0859	.173-	.02	.02	.0026	.0016	.007-										
6	.00-	.17	.564	.0973	.173-	.02	.02	.0019	.0013	.004-										
7	2.04	2.25	.593	.1151	.182-	.02	.02	.0015	.0006	.003-										
8	4.00	4.26	.840	.1351	.183-	.02	.02	.0005	.0001	.001-										
9	6.02	6.32	.975	.1605	.193-	.02	.02	.0003	.0003-	.000										
10	8.01	8.35	1.115	.1906	.197-	.02	.02	.0006	.0008-	.000										
11	10.00	10.39	1.247	.2239	.190-	.02	.02	.0006	.0013-	.002										
12	12.00	12.43	1.374	.2604	.199-	.02	.02	.0006	.0007-	.000										
13	14.01	14.48	1.498	.3141	.196-	.02	.02	.0006	.0011-	.002-										
14	16.02	16.51	1.560	.3745	.191-	.02	.02	.0023-	.0032-	.002										
15	18.00	18.49	1.470	.4627	.195-	.02	.02	.0042	.0201-	.011										
16	20.01	20.45	1.425	.5155	.220-	.02	.02	.0008	.0059-	.049-										

LOW SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_1	α	PORTAL AREA			STAB			ψ_1	ψ	TUB			DATE
			C_L	C_D	C_M	C_N	C_{TAS}	C_{TAB}			C_N	C_L	C_C	
2	8.02-	8.01-	.039	.0735	.214-	.02	.02	.0045-	.02	.02	.0011	.0011	.001	11/19/62
3	5.03-	5.03-	.188	.0689	.231-	.02	.02	.0017	.02	.02	.0008	.0008	.003-	12.0
4	4.02-	3.92-	.334	.0773	.253-	.02	.02	.0009	.02	.02	.0022	.0022	.002-	
5	2.02-	1.87-	.493	.0943	.272-	.02	.02	.0003	.02	.02	.0021	.0021	.001-	
6	.01-	.18	.619	.1023	.282-	.02	.02	.0008	.02	.02	.0019	.0019	.001-	
7	2.02	2.25	.746	.1219	.292-	.00	.00	.0017	.00	.00	.0013	.0013	.001-	
8	4.01	4.29	.896	.1439	.303-	.02	.02	.0004	.02	.02	.0002	.0002	.000-	
9	6.01	6.33	1.029	.1705	.307-	.02	.02	.0005	.02	.02	.0001-	.0001-	.000	
10	8.00	8.36	1.169	.2016	.317-	.02	.02	.0006	.02	.02	.0005-	.0005-	.000	
11	10.01	10.42	1.312	.2301	.314-	.02	.02	.0005	.02	.02	.0007-	.0007-	.001	
12	12.00	12.44	1.424	.2762	.312-	.02	.02	.0005	.02	.02	.0007-	.0007-	.001	
13	14.02	14.30	1.537	.3312	.303-	.02	.02	.0010	.02	.02	.0008-	.0008-	.001-	
14	16.01	16.51	1.590	.3976	.283-	.02	.02	.0023-	.02	.02	.0040-	.0040-	.003	
15	18.00	18.47	1.501	.4806	.291-	.02	.02	.0045	.02	.02	.0126-	.0126-	.001-	
16	20.02	20.45	1.424	.5360	.311-	.02	.02	.0007-	.02	.02	.0088-	.0088-	.004-	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_f	α	FORCE AXIS				MOMENT AXIS				ψ	TEST 343-1				DATE 11/10/62
			C_L	C_D	C_m	ψ_f	C_L	C_D	C_m	ψ		C_L	C_D	C_m	ψ	
3	0.02-	8.12-	.329-	.0472-	.153-	.00	.00	.0020-	.0016	.00		.0016	.0005-	.0016	.00	12/10/60
4	6.03-	6.03-	.104-	.0763	.149-	.01	.01	.0001	.0013	.01		.0013	.0003-	.0013	.01	
5	4.03-	4.03-	.065-	.0324	.104-	.01	.01	.0003	.0013	.01		.0013	.0004-	.0013	.01	
6	2.02-	2.01-	.039	.0314	.135-	.01	.01	.0007	.0009	.01		.0009	.0003-	.0009	.01	
7	.02-	.03	.199	.0351	.209-	.00	.00	.0011	.0009	.00		.0009	.0005-	.0009	.00	
8	2.00	2.10	.318	.0420	.217-	.00	.00	.0010	.0008	.00		.0008	.0004-	.0008	.00	
10	4.01	4.17	.522	.0530	.241-	.00	.00	.0011	.0009	.00		.0009	.0004-	.0009	.00	
11	5.02	6.20	.597	.0675	.240-	.00	.00	.0015	.0011	.00		.0011	.0005-	.0011	.00	
12	8.02	0.25	.732	.0835	.235-	.00	.00	.0016	.0009	.00		.0009	.0004-	.0009	.00	
14	10.01	10.26	.816	.1121	.211-	.00	.00	.0017	.0003-	.00		.0003-	.0003-	.0003-	.00	
15	12.01	12.29	.914	.1410	.194-	.00	.00	.0017	.0009-	.00		.0009-	.0003-	.0009-	.00	
16	14.01	14.32	1.013	.1716	.163-	.00	.00	.0017	.153-	.00		.0017	.0003-	.0017	.00	
17	16.02	15.35	1.069	.2120	.142-	.00	.00	.0015	.142-	.00		.0015	.0007-	.0022	.00	
18	19.01	18.35	1.093	.2725	.147-	.00	.00	.0027-	.0003	.00		.0027-	.0007-	.0003	.00	
19	20.01	20.34	1.049	.3421	.214-	.00	.00	.0017-	.0019-	.00		.0017-	.0007-	.0019-	.00	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_1	α	FORCE AXIS				STAB		ψ	MOMENT AXIS				TEST	DATE	11/19/82
			C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_N	C_L	C_C	C_C			
3	3.03-	8.13-	.399-	.0527	.039-	.00-	.00	.0016-	.0025-	.0016-	.0025-	.004-	.004-			120.0
4	6.03-	6.11-	.251-	.0373	.055-	.00-	.00	.0038	.0002-	.0038	.0002-	.007-	.007-			
5	4.03-	4.07-	.134-	.0312	.065-	.00-	.00	.0030	.0002	.0030	.0002	.009-	.009-			
6	2.03-	2.03-	.000-	.0296	.081-	.00-	.00	.0026	.0002	.0026	.0002	.007-	.007-			
7	.01-	.02	.123	.0314	.087-	.00-	.00	.0024	.0009	.0024	.0009	.006-	.006-			
9	2.01	2.09	.254	.0366	.102-	.00-	.00	.0021	.0011	.0021	.0011	.005-	.005-			
10	4.01	4.13	.373	.0450	.115-	.00-	.00	.0016	.0010	.0016	.0010	.005-	.005-			
11	6.00	6.16	.529	.0573	.125-	.00-	.00	.0014	.0009	.0014	.0009	.004-	.004-			
12	8.00	8.20	.651	.0733	.133-	.00-	.00	.0010	.0011	.0010	.0011	.003-	.003-			
13	10.02	10.25	.790	.0920	.144-	.00-	.00	.0010	.0007	.0010	.0007	.002-	.002-			
14	12.02	12.30	.901	.1150	.151-	.00-	.00	.0010	.0010-	.0010	.0010-	.000-	.000-			
15	14.01	14.32	1.009	.1413	.159-	.00-	.00	.0010	.0007-	.0010	.0007-	.001-	.001-			
16	16.01	16.34	1.071	.1904	.152-	.00-	.00	.0013	.0021	.0013	.0021	.005-	.005-			
17	18.02	18.36	1.098	.2453	.169-	.00-	.00	.0015-	.0007	.0015-	.0007	.000	.000			
18	20.01	20.33	1.0	.3217	.175-	.00-	.00	.0017-	.0019-	.0017-	.0019-	.011-	.011-			

LOW SPEED WIND TUNNEL FINAL DATA SHEET

P1	α_1	α	PORT AXIS				STAB				RUN	DATE
			C_L	C_D	C_m	ψ_1	ψ	C_p	C_f	C_c		
2	8.01-	2.13-	.403-	.0539	.012	.00-	.00	.0015	.0009-	.004-	11/19/52	
3	6.03-	6.12-	.233-	.0413	.000-	.00-	.00	.0022	.0003-	.003-		
4	4.01-	4.03-	.153-	.0321	.010-	.00-	.00	.0045	.0004-	.002-		
5	2.01-	2.01-	.015-	.0297	.024-	.00-	.00	.0039	.0003	.002-		
6	.01-	.01	.003	.0303	.033-	.00-	.00	.0024	.0007	.002-		
7	2.00	2.06	.220	.0353	.043-	.00-	.00	.0029	.0008	.002-		
8	4.01	4.12	.354	.0434	.056-	.00-	.00	.0022	.0011	.004-		
9	6.00	6.15	.487	.0546	.063-	.00-	.00	.0017	.0013	.002-		
10	8.01	8.20	.626	.0592	.073-	.00-	.00	.0017	.0012	.002-		
11	10.01	10.24	.743	.0873	.083-	.00-	.00	.0012	.0011	.002-		
13	12.03	12.30	.873	.1020	.092-	.00-	.00	.0008	.0006-	.001-		
14	14.01	14.31	.991	.1241	.090-	.00-	.00	.0008	.0005-	.001-		
15	16.02	16.33	1.083	.1730	.106-	.00-	.00	.0009	.0025	.003-		
16	18.01	18.35	1.081	.2361	.124-	.00-	.00	.0042-	.0008-	.002-		
17	20.03	20.34	1.013	.3124	.146-	.00-	.00	.0013-	.0003-	.001-		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES STAB
MOMENT AXES STAB

REF 243-1
REV 23-0

DATE 11/13/52

PT	α_1	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_Y	C_Z
2	6.02	6.12	.339	.0473	.110	.00	.00	.0006	.0013	.006
3	4.02	4.08	.204	.0378	.096	.00	.00	.0014	.0010	.014
4	2.03	2.05	.077	.0339	.093	.00	.00	.0013	.0023	.013
5	.02	.03	.045	.0326	.081	.00	.00	.0005	.0023	.017
6	2.00	2.05	.175	.0354	.067	.00	.00	.0015	.0017	.001
7	4.01	4.10	.301	.0416	.060	.00	.00	.0004	.0028	.003
8	6.01	6.14	.438	.0509	.031	.00	.00	.0001	.0022	.004
9	3.03	3.20	.352	.0446	.043	.00	.00	.0003	.0016	.003
10	10.01	10.22	.595	.0804	.034	.00	.00	.0017	.0027	.001
11	12.00	12.25	.817	.0998	.027	.00	.00	.0014	.0009	.000
13	14.01	14.30	.924	.1233	.020	.00	.00	.0012	.0004	.000
14	15.01	15.32	1.001	.1600	.013	.00	.00	.0010	.0023	.000
15	15.01	15.33	1.025	.2279	.015	.00	.00	.0040	.0015	.000
16	20.02	20.32	.932	.2015	.068	.00	.00	.0012	.0001	.000

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											FORCE AREA	STAB	WTR	343-1	DATE	11/13/52
											MOMENT AREA	STAB	WTR	24-0		
Pt	α_1	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_X	C_C						
2	5.01-	6.12-	.335-	.0498	.161	.00-	.00	.0053	.0002-	.013-						
3	4.02-	4.09-	.227-	.0407	.154	.00-	.00	.0063	.0003	.032-						
4	2.01-	2.04-	.179-	.0357	.140	.00-	.00	.0053	.0003-	.012-						
5	.01-	.01-	.014	.0343	.133	.00-	.00	.0050	.0001-	.013-						
6	2.01	2.05	.143	.0352	.130	.00-	.00	.0050	.0001	.010-						
7	4.03	4.11	.278	.0418	.117	.00-	.00	.0043	.0003	.004-						
8	6.03	6.15	.407	.0509	.103	.00-	.00	.0035	.0003	.009-						
9	8.01	9.17	.332	.0530	.102	.02-	.02-	.0012	.0010	.007-						
10	10.00	10.20	.660	.0784	.094	.02-	.02-	.0021	.0005	.005-						
11	12.00	12.24	.779	.0973	.085	.02-	.02-	.0014	.0003	.000-						
12	14.01	14.20	.901	.1209	.077	.00-	.00	.0010	.0002-	.007-						
13	16.01	16.31	.970	.1362	.070	.02-	.02-	.0012	.0002	.006-						
14	18.01	18.32	.936	.2229	.043	.02-	.02-	.0037-	.0023-	.000-						
15	20.00	20.30	.961	.2951	.027-	.00-	.00	.0020-	.0020-	.007-						
16	12.01	12.29	.786	.0935	.084	.00-	.00	.0013	.0002-	.002-						
18	16.02	16.32	.974	.1567	.070	.00-	.00	.0010	.0010	.006-						
19	18.03	18.34	.991	.2233	.041	.03-	.02-	.0015-	.0023-	.000-						
20	18.03	18.34	.999	.2239	.040	.00-	.00	.0035-	.0011-	.013-						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_L	α	C_L	C_D	FORCE AXES		STAB		MOMENT AXES		STAB		DATE	TIME	11/17/52
					C_{L1}	C_{L2}	C_{M1}	C_{M2}	ψ_1	ψ_2	C_{L1}	C_{L2}			
2	6.00-	6.57-	.295-	.0486	.035	.02-	.035	.02-	.02-	.02-	.0017-	.0017-			
3	4.02-	4.07-	.175-	.0332	.030	.02-	.030	.02-	.02-	.02-	.0005-	.0005-			.000-
4	2.03-	2.04-	.045-	.0304	.023	.02-	.023	.02-	.02-	.02-	.0007-	.0007-			.000-
5	.01-	.01	.073	.0306	.017	.02-	.017	.02-	.02-	.02-	.0001	.0001			.000-
6	2.03	2.09	.199	.0347	.011	.02-	.011	.02-	.02-	.02-	.0007	.0007			.000-
7	4.01	4.11	.321	.0422	.007	.02-	.007	.02-	.02-	.02-	.0009	.0009			.000-
8	5.00	5.14	.459	.0515	.002	.02-	.002	.02-	.02-	.02-	.0009	.0009			.000-
9	0.03	0.21	.391	.0648	.002-	.02-	.002-	.02-	.02-	.02-	.0013	.0013			.000-
10	10.01	10.23	.717	.0820	.007-	.02-	.007-	.02-	.02-	.02-	.0013	.0013			.000-
11	12.01	12.27	.833	.1032	.013-	.02-	.013-	.02-	.02-	.02-	.0007	.0007			.000-
12	14.01	14.30	.951	.1275	.015-	.02-	.015-	.02-	.02-	.02-	.0007	.0007			.000-
13	16.02	16.33	1.011	.1642	.020-	.02-	.020-	.02-	.02-	.02-	.0007	.0007			.000-
14	18.00	18.32	1.029	.2291	.039-	.02-	.039-	.02-	.02-	.02-	.0007	.0007			.000-
15	20.02	20.52	.973	.3015	.081-	.02-	.081-	.02-	.02-	.02-	.0010-	.0010-			.000-

LOW SPEED WIND TUNNEL FINAL DATA SHEET

PT	σ_t	α	C_l	C_D	FORCE AXES		MOMENT AXES		STAB		REF 343-1		DATE 11/13/62	
					C_m	ψ_t	C_m	ψ	C_n	C_y	C_n	C_y	C_n	C_y
2	5.03-	5.13-	.335-	.0518	.142-	.04-	.142-	.04-	.0037-	.0003	.0037-	.0003	.0037-	.0003
3	6.02-	6.03-	.211-	.0362	.132-	.02-	.132-	.02-	.0029	.0003	.0029	.0003	.0029	.0003
4	4.01-	4.03-	.082-	.0317	.155-	.02-	.155-	.02-	.0023	.0012	.0023	.0012	.0023	.0012
5	2.03-	2.02-	.028	.0319	.173-	.02	.173-	.02	.0024	.0014	.0024	.0014	.0024	.0014
6	.07-	.05	.173	.0345	.182-	.02-	.182-	.02-	.0015	.0013	.0015	.0013	.0015	.0013
7	2.01	2.10	.293	.0413	.183-	.02-	.183-	.02-	.0014	.0013	.0014	.0013	.0014	.0013
8	4.01	4.14	.431	.0521	.192-	.02-	.192-	.02-	.0013	.0013	.0013	.0013	.0013	.0013
9	6.01	6.18	.360	.0657	.202-	.02-	.202-	.02-	.0013	.0013	.0013	.0013	.0013	.0013
10	8.02	8.23	.609	.0844	.192-	.02-	.192-	.02-	.0013	.0013	.0013	.0013	.0013	.0013
11	10.01	10.25	.800	.1036	.181-	.02-	.181-	.02-	.0022	.0023	.0022	.0023	.0022	.0023
12	12.01	12.29	.900	.1253	.157-	.02-	.157-	.02-	.0023	.0023	.0023	.0023	.0023	.0023
13	14.01	14.32	.995	.1661	.136-	.02-	.136-	.02-	.0022	.0023	.0022	.0023	.0022	.0023
14	15.00	16.33	1.049	.2064	.117-	.02-	.117-	.02-	.0022	.0024	.0022	.0024	.0022	.0024
15	16.00	18.33	1.064	.2748	.140-	.02-	.140-	.02-	.0042	.0017	.0042	.0017	.0042	.0017
15	20.01	20.32	1.008	.3342	.184-	.02-	.184-	.02-	.0009	.0021	.0009	.0021	.0009	.0021

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	FORCE AXES				STAB				TOT 343-1				11/19/62			
	MOMENT AXES				STAB				TOT 27-3				120.0			
	α_1	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C						
3	5.01-	5.12-	.354-	.0465	.037-	.00-	.00-	.0073-	.0023	.000						
4	6.03-	5.10-	.249-	.0305	.087-	.00-	.00-	.0019-	.0029	.001						
5	4.02-	4.06-	.129-	.0252	.070-	.00	.00-	.0015-	.0032	.000						
6	2.01-	2.01-	.019-	.0242	.052-	.00-	.00-	.0015-	.0028	.001						
7	.01-	.02	.076	.0257	.037-	.00-	.00-	.0017-	.0023	.000						
8	2.01	2.07	.203	.0202	.010-	.00-	.00-	.0010-	.0025	.001						
9	4.03	4.12	.323	.0373	.015	.00-	.00-	.0017-	.0027	.000						
10	6.03	6.17	.449	.0471	.035	.02-	.02-	.0013-	.0023	.000						
11	9.01	9.10	.564	.0593	.059	.02-	.02-	.0014-	.0013	.000						
12	10.01	10.22	.678	.0741	.081	.02-	.02-	.0009-	.0013	.000						
13	12.01	12.25	.785	.0927	.101	.00-	.00-	.0010-	.0009	.001						
14	14.00	14.27	.898	.1150	.110	.02-	.02-	.0009-	.0004-	.000						
16	16.01	16.30	.943	.1473	.136	.02-	.02-	.0027-	.0027	.000						
17	18.00	18.30	.957	.2120	.123	.02-	.02-	.0008-	.0037-	.012						
19	20.02	20.30	.910	.2906	.054	.02-	.02-	.0040-	.0031-	.005						

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES STAB

RM 343-1

DATE 11/12/62

MOMENT AXES STAB

RM 23-0

DATE 12-0-0

Pt	α_i	α	C_L	C_D	C_m	ψ_i	ψ	C_n	C_l	C_t
2	.03-	.03	.123	.0252	.030-	12.02-	12.02-	.0303-	.0056	.077-
3	.03-	.03	.117	.0262	.037-	10.03-	10.03-	.0270-	.0053	.051-
4	.00-	.03	.116	.0267	.035-	8.02-	8.02-	.0223-	.0045	.044-
5	.00-	.03	.114	.0271	.033-	6.03-	6.03-	.0163-	.0040	.031-
6	.00-	.03	.108	.0272	.031-	4.02-	4.02-	.0120-	.0040	.019-
7	.00-	.03	.107	.0251	.029-	2.02-	2.02-	.0073-	.0035	.002-
8	.00-	.03	.105	.0255	.022-	.00	.00-	.0015-	.0029	.000
9	.00-	.03	.100	.0255	.030-	2.00	2.00	.0031	.0027	.003
10	.00-	.03	.102	.0271	.031-	4.02	4.02	.0113	.0021	.017
11	.00-	.03	.110	.0261	.034-	6.01	6.01	.0173	.0007	.023
12	.00-	.03	.107	.0262	.035-	8.02	8.02	.0221	.0010	.042
13	.00-	.03	.112	.0253	.033-	10.02	10.02	.0270	.0001-	.050
15	.00-	.03	.117	.0247	.041-	12.02	12.02	.0300	.0075-	.075

LOW SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_f	α	FORCE AIDS				STAB				TEST 343-1				DATE 11/19/62			
			C_L	C_D	C_M	ψ_L	ψ	C_H	C_A	C_C	C_H	C_A	C_C	C_H	C_A	C_C	C_H	C_A
3	8.02	8.19	.569	.0639	.031	12.02-	12.02-	.0293-	.0057-	.019-	.0293-	.0057-	.019-	.0293-	.0057-	.019-	.0293-	.0057-
4	8.02	8.19	.571	.0622	.040	10.00-	10.00-	.0275-	.0058-	.058-	.0275-	.0058-	.058-	.0275-	.0058-	.058-	.0275-	.0058-
5	8.02	8.19	.567	.0611	.045	8.02-	8.02-	.0234-	.0047-	.040-	.0234-	.0047-	.040-	.0234-	.0047-	.040-	.0234-	.0047-
6	8.02	8.19	.566	.0611	.051	6.02-	6.02-	.0155-	.0035-	.025-	.0155-	.0035-	.025-	.0155-	.0035-	.025-	.0155-	.0035-
7	8.02	8.19	.570	.0501	.053	4.03-	4.03-	.0134-	.0019-	.012-	.0134-	.0019-	.012-	.0134-	.0019-	.012-	.0134-	.0019-
8	8.02	8.19	.569	.0394	.052	2.03-	2.03-	.0277-	.0006-	.005-	.0277-	.0006-	.005-	.0277-	.0006-	.005-	.0277-	.0006-
9	8.02	8.19	.569	.0584	.061	.00	.00-	.0004-	.0011	.003	.0004-	.0011	.003	.0004-	.0011	.003	.0004-	.0011
10	8.02	8.19	.571	.0592	.050	2.02	2.02	.0055	.0030	.009	.0055	.0030	.009	.0055	.0030	.009	.0055	.0030
11	8.02	8.19	.555	.0399	.050	4.01	4.01	.0119	.0049	.018	.0119	.0049	.018	.0119	.0049	.018	.0119	.0049
13	8.02	8.19	.567	.0610	.053	6.01	6.01	.0173	.0064	.023	.0173	.0064	.023	.0173	.0064	.023	.0173	.0064
14	8.00	8.17	.566	.0639	.047	8.01	8.01	.0232	.0050	.042	.0232	.0050	.042	.0232	.0050	.042	.0232	.0050
15	8.00	8.18	.574	.0627	.039	10.00	10.00	.0285	.0086	.053	.0285	.0086	.053	.0285	.0086	.053	.0285	.0086
16	8.00	8.18	.580	.0649	.032	12.00	12.00	.0292	.0092	.076	.0292	.0092	.076	.0292	.0092	.076	.0292	.0092

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET																
FORCE AXIS STAB																
MOMENT AXIS STAB																
Pt	α_i	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_f	C_c						
2	16.02	16.32	.972	.1553	.093	12.02	12.02	.0262	.0234	.072						
3	16.02	16.32	.963	.1347	.095	10.02	10.02	.0221	.0207	.059						
4	16.02	16.32	.961	.1344	.119	8.00	8.00	.0179	.0172	.044						
5	16.02	16.32	.934	.1312	.125	6.00	6.00	.0131	.0143	.013						
6	16.02	16.31	.948	.1519	.122	4.00	4.00	.0022	.0289	.021						
7	16.02	16.31	.942	.1484	.134	2.03	2.03	.0207	.0207	.011						
8	16.02	16.31	.948	.1476	.133	.01	.01	.0227	.0223	.021						
11	16.02	16.31	.947	.1432	.136	2.02	2.02	.0020	.0276	.001						
12	16.02	16.31	.950	.1509	.132	4.02	4.02	.0070	.0132	.020						
13	16.02	16.32	.955	.1505	.123	6.00	6.00	.0132	.0172	.030						
14	16.02	16.32	.957	.1531	.122	8.01	8.01	.0173	.0199	.042						
15	16.02	16.32	.960	.1559	.111	10.03	10.03	.0222	.0237	.053						
16	16.02	16.32	.967	.1507	.101	12.02	12.02	.0269	.0260	.055						

LOW-SPEED WIND TUNNEL TEST DATA SHEET

MODEL ARES STAB TEST 343-1 DATE 11/19/52
 GEOMETRIC ARES STAB RUN 31-1 120.0

PT	α_L	α	C_L	C_D	C_M	ψ_L	ψ	C_u	C_f	C_c
2	.01-	.16	.571	.0932	.174-	12.00-	12.00-	.0222-	.0011	.004-
3	.01-	.15	.570	.0915	.171-	10.03-	10.03-	.0225-	.0005	.070-
4	.01-	.16	.570	.0912	.165-	8.03-	8.03-	.0103-	.0005	.053-
5	.01-	.16	.569	.0907	.164-	6.03-	6.03-	.0154-	.0003	.035-
6	.01-	.15	.568	.0913	.160-	4.00-	4.00-	.0104-	.0006	.021-
7	.01-	.16	.569	.0915	.158-	2.03-	2.03-	.0034-	.0005	.009-
8	.00-	.17	.565	.0909	.159-	.00-	.00-	.0015-	.0012	.003
9	.01-	.16	.570	.0925	.159-	2.01	2.01	.0028	.0020	.013
10	.00-	.17	.567	.0915	.162-	4.01	4.01	.0050	.0009	.027
12	.00-	.17	.571	.0910	.165-	6.00	6.00	.0129	.0016	.040
13	.01-	.17	.572	.0905	.160-	8.02	8.02	.0175	.0019	.050
14	.01-	.17	.574	.0905	.173-	10.03	10.03	.0212	.0020	.073
15	.01-	.17	.573	.0909	.170-	12.00	12.00	.0249	.0019	.091

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
		FORCE AXES		STAB		MOMENT AXES		STAB		
Pt	α	α_1	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_c
2	8.02	8.35	8.35	1.063	.1783	.104	12.02	12.02	.0237	.0144
3	8.02	8.35	8.35	1.071	.1784	.105	10.02	10.02	.0229	.0124
4	8.02	8.35	8.35	1.072	.1784	.093	8.03	8.03	.0193	.0105
5	8.02	8.35	8.35	1.074	.1767	.093	6.02	6.02	.0150	.0081
6	8.02	8.34	8.34	1.077	.1779	.083	4.03	4.03	.0097	.0055
9	8.02	8.35	8.35	1.079	.1781	.065	2.03	2.03	.0059	.0041
10	8.02	8.37	8.37	1.075	.1777	.003	.00	.00	.0012	.0009
11	8.02	8.36	8.36	1.000	.1786	.005	2.01	2.01	.0040	.0024
12	8.02	8.35	8.35	1.076	.1775	.007	4.01	4.01	.0026	.0043
14	8.03	8.36	8.36	1.079	.1770	.074	6.03	6.03	.0131	.0072
15	8.02	8.36	8.36	1.004	.1773	.101	8.01	8.01	.0174	.0100
16	8.02	8.36	8.36	1.006	.1795	.110	10.01	10.01	.0216	.0126
17	8.02	8.35	8.35	1.004	.1792	.114	12.00	12.00	.0245	.0143

STAB STAB

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													TEST 343-1	DATE 11/19/62
PT	α_1	α	C_L	C_D	CORRECT DATA		STAB		ψ	C_n	C_y	C_z		
					C_m	ψ_s	C_m	ψ_s						
2	8.03-	8.02-	.046	.0572	.217-	.00-	.00-	.0023	.003-	.003-	.003-			
3	6.01-	5.06-	.172	.0644	.276-	.00-	.00-	.0033	.001	.001	.001			
4	4.01-	3.02-	.314	.0638	.124-	.00-	.00-	.0026	.002	.002	.002			
5	2.02-	1.57-	.440	.0774	.173-	.00-	.00-	.0022	.003	.003	.003			
6	.01-	.16	.535	.0909	.136-	.00-	.00-	.0017	.003	.003	.003			
7	2.02	2.23	.636	.1079	.137-	.00-	.00-	.0022-	.003	.003	.003			
8	4.01	4.26	.803	.1274	.118-	.00-	.00-	.0001	.003	.003	.003			
9	6.01	6.30	.930	.1318	.101-	.00-	.00-	.0003-	.004	.004	.004			
10	8.01	8.34	1.075	.1733	.033-	.00-	.00-	.0010-	.004	.004	.004			
11	10.01	10.30	1.194	.2090	.003-	.00-	.00-	.0014-	.003	.003	.003			
12	12.00	12.41	1.313	.2433	.027-	.00-	.00-	.0006-	.003	.003	.003			
13	14.02	14.40	1.423	.2949	.028-	.00-	.00-	.0003-	.001	.001	.001			
14	16.01	16.43	1.453	.3531	.009-	.00-	.00-	.0009-	.005	.005	.005			
15	18.01	18.42	1.310	.4345	.018-	.00-	.00-	.0003-	.003	.003	.003			
16	20.03	20.44	1.302	.4942	.046-	.00-	.00-	.0002-	.003	.003	.003			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_1	α	C_L	C_D	FORCE AXES		STAB		REF 343-1		DATE 11/19/62	
					ROLLING AXES	STAB	ROLLING AXES	STAB	REF 34-0	Q	120.0	
					C_m	ψ_z	ψ		C_n	C_L	C_D	
3	8.03-	8.01-	.077	.0643	.225-	.00	.00	.00	.0009-	.0021	.0030-	
4	6.01-	5.93-	.193	.0623	.216-	.00	.00	.00	.0006-	.0031	.0030-	
5	4.02-	3.92-	.337	.0771	.203-	.00	.00	.00	.0007-	.0029	.0006	
6	2.00-	1.60-	.439	.0066	.134-	.00	.00	.00	.0005-	.0022	.0001	
7	.01-	.17	.534	.0739	.103-	.00	.00	.00	.0004-	.0016	.0001	
8	2.00	2.22	.700	.1139	.143-	.00	.00	.00	.0004-	.0010	.0002	
9	4.01	4.27	.835	.1373	.130-	.00	.00	.00	.0003-	.0005	.0003	
10	6.03	6.30	.973	.1624	.112-	.00	.00	.00	.0007-	.0003-	.0003	
11	8.02	8.33	1.093	.1894	.096-	.00	.00	.00	.0006-	.0003-	.0003	
12	10.00	10.33	1.220	.2200	.076-	.00	.00	.00	.0001-	.0014-	.0003	
13	12.01	12.43	1.346	.2559	.059-	.00	.00	.00	.0003-	.0013-	.0002	
14	14.01	14.46	1.444	.3096	.041-	.00	.00	.00	.0004-	.0009-	.0002	
15	16.02	16.43	1.482	.3691	.021-	.00	.00	.00	.0076-	.0025-	.0016	
16	18.00	18.41	1.332	.4518	.012-	.00	.00	.00	.0025	.0012-	.0002	
19	20.00	20.41	1.310	.5031	.003-	.00	.00	.00	.0003-	.0009-	.0001	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α	u	FORCE AXIS			STAB			TEST 343-1			DATE 11/12/62		
			C_D	C_L	C_M	ψ_L	ψ	C_N	C_T	C_C	C_C	120.0		
2	6.01-	7.90-	.0760	.009	.234-	.00	.00	.0049-	.0032	.001	.001			
3	6.02-	5.95-	.0743	.234	.227-	.00	.00	.0009-	.0033	.000	.000			
4	4.01-	3.90-	.0036	.373	.211-	.00	.00	.0005-	.0033	.001	.001			
5	2.01-	1.86-	.0045	.495	.196-	.00	.00	.0007-	.0029	.000	.000			
6	.02-	.17	.1077	.619	.177-	.00	.00	.0005-	.0023	.001	.001			
7	2.01	2.24	.1269	.745	.159-	.00	.00	.0000-	.0010	.002	.002			
8	4.00	4.27	.1473	.860	.140-	.00	.00	.0010-	.0005	.002	.002			
9	6.01	6.32	.1715	.997	.120-	.00	.00	.0009-	.0001-	.003	.003			
10	8.01	8.36	.1999	1.125	.104-	.00	.00	.0007-	.0004-	.003	.003			
11	10.01	10.49	.2327	1.254	.088-	.00	.00	.0007-	.0013-	.003	.003			
14	12.01	12.44	.2691	1.377	.070-	.00	.00	.0009-	.0003-	.003	.003			
15	14.01	14.47	.3199	1.474	.047-	.00	.00	.0005-	.0005-	.001	.001			
16	16.01	16.47	.3654	1.400	.034-	.00	.00	.0000-	.0037-	.000	.000			
17	18.01	18.43	.4054	1.350	.039-	.00	.00	.0004	.0044-	.000	.000			
18	20.01	20.43	.5216	1.342	.063-	.00	.00	.0004	.0083-	.001	.001			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_f	α	FORCE AXES				STAB				TEST 343-1		DATE 11/14/62	
			C_L	C_D	C_m	ψ_1	ψ	C_n	C_f	C_c	343-2	1	120.0	
2	8.03-	8.14-	.361-	.0436	.156-	.00-	.00	.0014-	.0026	.001-				
3	6.02-	6.00-	.240-	.0339	.003-	.00-	.00	.0012-	.0023	.001-				
4	4.00-	4.07-	.129-	.0287	.009-	.00-	.00	.0011-	.0021	.001-				
5	2.03-	2.03-	.029-	.0273	.051-	.00-	.00	.0014-	.0026	.001-				
6	.00	.02	.091	.0205	.030-	.00-	.00	.0014-	.0020	.000-				
7	2.01	2.07	.199	.0328	.007-	.00-	.00	.0015-	.0020	.000-				
8	4.02	4.11	.313	.0399	.010	.00-	.00	.0012-	.0019	.001-				
10	8.01	8.18	.552	.0630	.063	.00-	.00	.0008-	.0018	.001-				
11	10.01	10.21	.653	.0707	.082	.00-	.00	.0007-	.0011	.001-				
12	12.01	12.24	.761	.0987	.100	.00-	.00	.0010-	.0007-	.000-				
13	14.00	14.27	.871	.1229	.116	.00-	.00	.0010-	.0011-	.000				
15	16.01	16.23	.892	.1708	.099	.00-	.00	.0020-	.0023	.000-				
16	18.01	18.23	.831	.2196	.020	.00-	.00	.0042-	.0025	.000				
17	20.01	20.29	.904	.2694	.001	.00-	.00	.0053-	.0077-	.000				

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET														
		FORCE AXES			STAB					REV 343-1			REV 11/14/62	
		MOMENT AXES			STAB					REV 37-3			REV 120-0	
Pt	α_1	α	C_L	C_D	C_m	ψ_L	ψ		C_n	C_L	C_C			
4	8.02-	8.13-	.330-	.0435	.105-	.00	.00		.0012-	.0025	.000			
5	6.02-	6.09-	.240-	.0351	.039-	.00	.00		.0011-	.0024	.000-			
6	4.00-	4.05-	.130-	.0290	.070-	.00	.00		.0012-	.0026	.000-			
7	2.02-	2.02-	.06-	.0279	.050-	.00	.00		.0012-	.0022	.000-			
8	.02	.04	.095	.0229	.020-	.00	.00		.0013-	.0022	.000-			
9	2.00	2.07	.207	.0300	.035-	.00	.00		.0014-	.0019	.000			
10	4.00	4.10	.315	.0411	.047	.00	.00		.0012-	.0017	.000			
11	6.00	6.14	.437	.0510	.050	.00	.00		.0011-	.0010	.000			
12	8.00	8.20	.557	.0646	.061	.00	.00		.0011-	.0012	.000			
13	10.02	10.22	.651	.0793	.061	.00	.00		.0000-	.0007-	.000			
14	12.02	12.20	.756	.0939	.099	.00	.00		.0000-	.0005-	.002			
16	14.00	14.23	.870	.1203	.113	.00	.00		.0003-	.0009-	.001			
17	16.02	16.30	.911	.1734	.120	.00	.00		.0025-	.0006	.000			
18	18.00	18.31	.913	.2290	.112	.00	.00		.0041-	.0007-	.003			
19	20.00	20.29	.911	.2956	.054	.00	.00		.0016-	.0020-	.003-			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PI	α_f	α	FORCE AXES				MOMENT AXES				ψ	ψ_f	ψ	SUM	TEST 343-1	MR 11/19/62
			C_L	C_D	C_M	STAB	C_L	C_D	C_M	STAB						
2	8.00-	8.12-	.301-	.0473	.101-						.00-	.00	.0032	.0032		12090
3	6.00-	6.11-	.203-	.0347	.037-						.00	.00	.0033	.0033		
4	4.00-	4.05-	.137-	.0282	.007-						.00	.00	.0030	.0030		
5	2.00-	2.03-	.030-	.0269	.049-						.00	.00	.0030	.0030		
6	.02-	.00-	.004	.0274	.027-						.00	.00	.0024	.0024		
7	2.04	2.10	.204	.0322	.005-						.00	.00	.0019	.0019		
10	6.00	6.13	.443	.0467	.039						.00	.00	.0019	.0019		
11	8.02	8.19	.555	.0613	.059						.00	.00	.0017	.0017		
12	10.00	10.20	.600	.0775	.050						.00	.00	.0010	.0010		
15	12.02	12.20	.773	.0950	.079						.00	.00	.0009	.0009		
16	14.01	14.20	.871	.1190	.113						.00	.00	.0009	.0009		
18	16.02	16.31	.941	.1526	.133						.00	.00	.0014	.0014		
19	18.00	18.29	.942	.2137	.125						.00	.00	.0015	.0015		
20	20.03	20.31	.901	.2934	.054						.00	.00	.0005	.0005		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AREAS STAB
MOMENT AREAS STAB

REF 343-1
DUE 34-0

MM 11/19/62

12000

PI	α_1	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C
3	8.02-	8.13-	.372-	.0434	.102-	.00	.00	.0014-	.0037	.000-
4	6.00-	6.08-	.286-	.0354	.088-	.00	.00	.0013-	.0035	.001-
5	4.02-	4.06-	.145-	.0307	.068-	.00	.00	.0011-	.0030	.000-
6	2.02-	2.03-	.038-	.0283	.050-	.00	.00	.0012-	.0030	.000-
7	.02	.04	.075	.0284	.026-	.00	.00	.0017-	.0029	.000-
9	2.01	2.00	.187	.0327	.034-	.00	.00	.0016-	.0020	.000-
10	4.02	4.11	.302	.0344	.017	.00	.00	.0014-	.0023	.000-
11	6.02	6.15	.420	.0496	.041	.00	.00	.0012-	.0014	.001-
12	8.03	8.20	.547	.0616	.063	.00	.00	.0011-	.0013	.000-
13	10.03	10.23	.648	.0765	.081	.00	.00	.0004-	.0009	.000-
14	12.03	12.26	.751	.0949	.100	.00	.00	.0010-	.0004-	.000
15	14.01	14.28	.862	.1149	.117	.00	.00	.0009-	.0001-	.000
19	18.00	18.29	.935	.2141	.124	.00	.00	.0073-	.0040-	.011
20	20.02	20.30	.908	.2842	.050	.00	.00	.0017-	.0009-	.000-
21	16.02	16.31	.931	.1444	.136	.00	.00	.0020-	.0020	.001-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PI	α_L	α	C_L	C_D	FORCE AXES		ψ	ψ_s	TEST 343-1			DATE 11/19/42
					MOMENT AXES	STAB			RUN	40-0	1	
					C_m	STAB			C_R	C_I	C_C	
3	8.02-	8.13-	.352-	.0412	.107-		.00	.00	.0014-	.0025	.000	120.0
4	6.03-	6.10-	.244-	.0318	.091-		.00	.00	.0015-	.0025	.001	
5	4.02-	4.05-	.120-	.0275	.074-		.00	.00	.0011-	.0023	.001	
6	2.02-	2.02-	.001	.0259	.053-		.00	.00	.0011-	.0015	.001	
7	.02-	.01	.100	.0273	.034-		.00	.00	.0015-	.0025	.001	
8	2.01	2.02	.224	.0316	.011-		.00	.00	.0014-	.0019	.001	
9	4.02	4.12	.338	.0399	.010		.00	.00	.0014-	.0017	.001	
10	6.01	6.15	.464	.0507	.031		.00	.00	.0014-	.0019	.001	
11	8.01	8.19	.584	.0641	.052		.00	.00	.0015-	.0017	.001	
12	10.02	10.24	.708	.0797	.073		.00	.00	.0019-	.0013	.001	
13	12.01	12.26	.824	.0903	.094		.00	.00	.0011-	.0015-	.001	
14	14.01	14.30	.932	.1205	.118		.00	.00	.0012-	.0015-	.001	
15	16.02	16.31	.946	.1505	.133		.00	.00	.0013-	.0017	.001	
16	18.01	18.30	.947	.2198	.117		.00	.00	.0131-	.0017	.015	
17	20.01	20.29	.915	.2800	.054		.00	.00	.0041-	.0015-	.001	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

P	α_1	α	FORCE AXIS			STAB			TEST			DATE		
			C_D	C_L	C_M	ψ_1	ψ	C_N	C_L	C_C				
2	8.03-	8.14-	.0330	.357-	.106-	.00	.00	.0014-	.0031	.007-		11/10/50		127.0
3	6.00-	6.07-	.0230	.241-	.090-	.00	.00	.0013-	.0034	.007-				
4	4.02-	4.05-	.0240	.112-	.070-	.00	.00	.0009-	.0017	.007				
5	2.01-	2.01-	.0234	.010-	.053-	.00	.00	.0011-	.0024	.007				
6	.02	.05	.0241	.099	.033-	.00	.00	.0014-	.0027	.007				
7	2.00	2.00	.0235	.204	.011-	.00	.00	.0015-	.0024	.007				
8	4.01	4.11	.0173	.323	.012	.00	.00	.0015-	.0023	.001				
9	6.01	6.15	.0470	.447	.037	.00	.00	.0014-	.0022	.007				
11	8.01	8.16	.0391	.567	.057	.00	.00	.0012-	.0015	.001				
12	10.01	10.22	.0742	.677	.079	.00	.00	.0010-	.0011	.007-				
14	12.02	12.26	.0929	.783	.099	.00	.00	.0010-	.0024	.001				
15	14.01	14.29	.1158	.892	.115	.00	.00	.0009-	.0026-	.001				
16	16.01	16.30	.1484	.948	.134	.00	.00	.0027-	.0028	.000				
17	18.01	18.30	.2160	.946	.120	.00	.00	.0115-	.0099-	.016				
18	20.01	20.30	.2904	.924	.053	.00	.00	.0026-	.0057-	.004				

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXES STAB RUN 343-1 DATE 11/19/49
 MOMENT AXES STAB RUN 43-0 1 120.0

PT	α_1	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_Z	C_C
3	8.02	8.19	.561	.0029	.043	10.00-	10.00-	.0290-	.0070-	.044-
5	8.02	8.19	.569	.0615	.042	8.03-	8.03-	.0290-	.0044-	.033-
6	8.03	8.20	.567	.0604	.053	6.01-	6.01-	.0202-	.0044-	.024-
7	8.03	8.20	.571	.0529	.059	4.00-	4.00-	.0132-	.0027-	.012-
8	8.02	8.19	.560	.0544	.060	2.02-	2.02-	.0077-	.0005-	.002-
9	8.02	8.19	.570	.0594	.062	.00-	.00-	.0000-	.0015	.000
10	8.02	8.20	.572	.0587	.061	2.00	2.00	.0059	.0034	.003
11	8.03	8.20	.570	.0601	.057	4.01	4.01	.0117	.0051	.013
13	8.03	8.20	.563	.0601	.054	6.02	6.02	.0140	.0074	.025
14	8.03	8.20	.567	.0607	.050	8.02	8.02	.0234	.0030	.041
15	8.02	8.20	.574	.0617	.043	10.01	10.01	.0230	.0101	.055
16	8.02	8.20	.575	.0637	.034	12.02	12.02	.0315	.0115	.073

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	FORCE AXES			STAB		TEST		DATE	
			MOMENT AXES			STAB		NO			
			C_L	C_D	C_m	ψ_L	ψ	C_H	C_f		
2	16.02	16.32	.971	.1549	.095	12.03	12.03	.0247	.0270	1	12.0.0
3	16.02	16.32	.963	.1554	.109	10.00	10.00	.0233	.0232		.054
4	16.02	16.32	.960	.1554	.115	8.03	8.03	.0195	.0207		.044
5	16.02	16.31	.949	.1545	.121	6.02	6.02	.0142	.0153		.032
6	16.02	16.31	.940	.1510	.129	4.03	4.03	.0090	.0179		.022
7	16.02	16.31	.945	.1490	.135	2.03	2.03	.0042	.0073		.011
8	16.02	16.31	.932	.1484	.137	.00	.00	.0033	.0027		.001
10	16.02	16.31	.947	.1494	.135	2.01	2.01	.0013	.0052		.002
11	16.02	16.32	.957	.1501	.131	4.01	4.01	.0097	.0134		.021
12	16.02	16.31	.952	.1500	.125	6.01	6.01	.0112	.0180		.032
13	16.02	16.32	.954	.1510	.119	8.00	8.00	.0162	.0217		.045
14	16.02	16.32	.957	.1541	.111	10.01	10.01	.0212	.0241		.057
15	16.02	16.32	.963	.1590	.100	12.01	12.01	.0243	.0274		.064

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										FORCE AXES		STAR		TEST 343-1		DATE 11/19/52	
										MOMENT AXES		STAR		DATE 11-2		1 120.7	
Pt	α_f	α	C_L	C_D	C_m	ψ_L	ψ	C_H	C_T	C_C							
2	8.01-	8.12-	.355-	.0357	.102-	.01	.01	.0017-	.0023	.003							
4	4.02-	4.05-	.122-	.0136-	.065-	.01	.01	.0015-	.0024	.003-							
5	2.02-	2.02-	.012-	.0235	.041-	.01	.01	.0015-	.0024	.003							
6	.00	.02	.094	.0251	.037-	.01	.01	.0020-	.0029	.003							
7	2.01	2.07	.207	.0291	.009-	.01	.01	.0019-	.0025	.003							
8	4.01	4.11	.325	.0353	.015	.01	.01	.0017-	.0020	.003							
9	6.02	6.16	.445	.0453	.033	.01	.01	.0017-	.0022	.003							
10	8.01	8.18	.561	.0549	.061	.01	.01	.0014-	.0014	.003							
11	10.03	10.24	.577	.0734	.083	.01	.01	.0013-	.0016	.003							
12	12.00	12.24	.775	.0923	.102	.01	.01	.0012-	.0011	.003							
13	14.01	14.28	.983	.1138	.113	.01	.01	.0011-	.0007	.003							
14	16.01	16.30	.935	.1454	.135	.01	.01	.0027-	.0033	.002-							
15	18.00	18.30	.945	.2012	.123	.01	.01	.0011-	.0041	.003-							
16	20.01	20.29	.913	.2817	.053	.01	.01	.0010	.0015	.013-							

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_t	α	FORCE AREA			MOMENT AREA			ψ	TEST			DATE
			C_D	C_L	C_m	ψ_L	ψ	ψ		C_D	C_L	C_m	
2	.01-	.02	.0237	.115	.03	12.00-	12.00-	12.00-		.0264-	.0101	.081-	11/19/82
3	.01-	.02	.0265	.110	.038-	10.03-	10.03-	10.03-		.0275-	.0075	.060-	120.0
4	.01-	.02	.0264	.112	.035-	8.60-	8.60-	8.60-		.0237-	.0065	.045-	
5	.01-	.02	.0271	.113	.034-	6.00-	6.00-	6.00-		.0192-	.0055	.030-	
6	.01-	.02	.0271	.107	.032-	4.02-	4.02-	4.02-		.0138-	.0050	.019-	
7	.01-	.02	.0250	.102	.029-	2.02-	2.02-	2.02-		.0076-	.0042	.017-	
8	.01-	.02	.0232	.101	.023-	.00	.00	.00		.0016-	.0031	.000-	
9	.01-	.02	.0256	.097	.030-	2.00	2.00	2.00		.0040	.0025	.000	
10	.02-	.01	.0254	.100	.031-	4.01	4.01	4.01		.0173	.0073	.019	
11	.01-	.02	.0271	.099	.034-	6.01	6.01	6.01		.0147	.0077-	.030	
12	.01-	.02	.0263	.100	.035-	8.02	8.02	8.02		.0272	.0018-	.043	
13	.01-	.02	.0249	.108	.037-	10.01	10.01	10.01		.0253	.0027-	.050	
14	.02-	.01	.0250	.112	.040-	12.01	12.01	12.01		.0207	.0010-	.075	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

FORCE AXIS STAR STAR
 MOMENT AXIS STAR STAR
 RUN 343-1 RUN 11/19/49
 RUN 47-0 120.0

Pt	α_f	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_Y	C_C
2	8.02	8.19	.560	.0645	.031	12.03-	12.03-	.0235-	.0023-	.077-
4	8.01	8.18	.557	.0623	.039	10.03-	10.03-	.0277-	.0027-	.057-
5	8.01	8.18	.557	.0610	.046	8.03-	8.03-	.0245-	.0020-	.042-
6	8.02	8.19	.562	.0602	.053	6.03-	6.03-	.0196-	.0015-	.028-
7	8.02	8.19	.562	.0584	.057	4.03-	4.03-	.0176-	.0007-	.019-
8	8.01	8.18	.563	.0584	.060	2.04-	2.04-	.0077-	.0004	.009-
9	8.01	8.18	.562	.0581	.062	.02	.02	.0013-	.0014	.001
10	8.01	8.18	.565	.0030-	.068	2.01	2.01	.0051	.0028	.005
11	8.02	8.19	.563	.0597	.057	4.02	4.02	.0111	.0038	.012
12	8.02	8.19	.541	.0599	.066	6.02	6.02	.0146	.0037	.030
14	8.02	8.19	.559	.0602	.049	8.01	8.01	.0217	.0054	.042
15	8.01	8.18	.567	.0612	.042	10.01	10.01	.0247	.0063	.057
16	8.02	8.20	.572	.0620	.035	12.02	12.02	.0200	.0061	.074

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET													
		FORCE AXES		STAR				TEST		DATE			
		MOMENT AXES		STAR				DOWN					
P1	α_1	α	C_L	C_D	C_m	ψ_L	ψ	C_B	C_L	C_C			
2	8.02	7.99	.107	.0629	.237-	.00	.00	.0014-	.0022	.000-		11/19/52	
3	6.03	5.96	.250	.0680	.223-	.00	.00	.0013-	.0022	.000-			
4	4.00	3.88	.343	.0764	.213-	.00	.00	.0009-	.0016	.000-			
5	2.03	1.87	.514	.0877	.196-	.00	.00	.0008-	.0013	.001			
6	.00	.00	.637	.1011	.177-	.00	.00	.0006-	.0014	.000-			
7	2.01	2.24	.757	.1190	.150-	.00	.00	.0006-	.0008	.001			
9	4.02	4.29	.889	.1437	.141-	.00	.00	.0007-	.0011	.002			
10	6.00	6.32	1.010	.1679	.124-	.00	.00	.0005-	.0015	.002			
11	8.02	8.38	1.154	.1932	.100-	.00	.00	.0003-	.0016	.002			
13	10.03	10.43	1.273	.2294	.093-	.00	.00	.0001-	.0018	.003			
15	12.01	12.44	1.390	.2687	.073-	.00	.00	.0006-	.0001	.000			
16	14.00	14.47	1.510	.3237	.056-	.00	.00	.0016-	.0021	.001			
17	16.00	16.49	1.571	.3717	.033-	.00	.00	.0024-	.0071	.006			
18	18.01	18.46	1.429	.4726	.044-	.00	.00	.0011-	.0054	.005			
19	20.01	20.42	1.319	.5275	.072-	.00	.00	.0022-	.0019	.015			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α_i	α	FORCE AREA				STAB				TEST 343-1				DATE 11/19/59			
			C_L	C_D	C_M	ψ_i	ψ	C_N	C_L	C_C	40-1	40-1	40-1	40-1	Q	Q	Q	Q
2	8.31	8.36	1.132	.1941	.131-	12.02-	12.02-	.0251-	.0059-	.093-								
3	8.30	8.35	1.142	.1943	.129-	10.03-	10.03-	.0233-	.0075-	.071-								
4	8.30	8.36	1.141	.1945	.124-	8.73-	8.73-	.0137-	.0063-	.055-								
5	8.31	8.37	1.145	.1949	.119-	6.02-	6.02-	.0147-	.0054-	.039-								
6	8.31	8.37	1.147	.1957	.111-	4.01-	4.01-	.0100-	.0049-	.025-								
7	8.30	8.36	1.153	.1953	.109-	2.02-	2.02-	.0054-	.0032-	.011-								
8	8.30	8.36	1.154	.1972	.102-	.00-	.00-	.0000-	.0012-	.003								
10	8.31	8.37	1.153	.1973	.109-	2.02	2.02	.0045	.0006	.015								
11	8.31	8.37	1.154	.1943	.112-	4.02	4.02	.0036	.0023	.020								
12	8.32	8.38	1.160	.1930	.115-	6.00	6.00	.0131	.0040	.043								
13	8.31	8.36	1.141	.1921	.119-	8.01	8.01	.0130	.0050	.057								
14	9.31	8.36	1.141	.1913	.126-	10.01	10.01	.0232	.0072	.073								
15	8.31	8.36	1.145	.1925	.130-	12.00	12.00	.0230	.0085	.091								

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
			FORCE AXES			STAB		TEST 343-1		
			MOMENT AXES			STAB		DATE 11/19/53		
Pt	α_f	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_A	C_C
2	8.02-	7.00-	.119	.0670	.237-	.00	.00-	.0013-	.0031	.007
3	6.02-	5.95-	.253	.0643	.224-	.00	.00	.0013-	.0030	.007-
4	4.02-	3.90-	.394	.0757	.214-	.00	.00	.0010-	.0023	.001
5	2.02-	1.87-	.516	.0874	.195-	.00	.00	.0008-	.0022	.001
6	.01-	.19	.530	.1023	.173-	.00	.00-	.0007-	.0023	.001
7	2.00	2.24	.743	.1205	.160-	.00	.00-	.0007-	.0025	.002
8	4.02	4.29	.885	.1417	.142-	.00	.00	.0005-	.0022-	.002
9	6.01	6.33	1.032	.1630	.123-	.00	.00-	.0007-	.0027-	.003
10	8.01	8.37	1.156	.2001	.110-	.00	.00-	.0005-	.0023-	.003
11	10.01	10.41	1.277	.2333	.092-	.00	.00-	.0002-	.0015-	.002
12	12.00	12.43	1.393	.2722	.075-	.00	.00-	.0007-	.0001	.001
14	14.01	14.43	1.510	.3203	.053-	.00	.00	.0013-	.0035	.001-
15	16.00	16.49	1.564	.3705	.031-	.00	.00	.0010-	.0001	.000-
16	18.03	18.42	1.207	.4711	.043-	.00	.00	.0077-	.0121	.000-
17	20.01	20.41	1.207	.5276	.070-	.00	.00	.0043-	.0201	.010-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
FORCE AXES STAB										
MOMENT AXES STAB										
Pt	α_t	α	C_L	C_D	C_m	ψ_t	ψ	C_n	C_L	C_c
3	8.03-	7.99-	.135	.0646	.240-	.00	.00	.0014-	.0043	.001-
4	6.02-	5.94-	.272	.0705	.234-	.00	.00	.0008-	.0045	.002-
5	4.02-	3.89-	.425	.0803	.222-	.00	.00	.0008-	.0023	.001
6	2.03-	1.86-	.553	.0929	.208-	.00	.00	.0006-	.0024	.000
7	.00-	.21	.683	.1104	.191-	.00	.00	.0005-	.0026	.000
8	2.01	2.26	.807	.1312	.175-	.00	.00	.0005-	.0020	.000
9	4.02	4.31	.942	.1544	.160-	.00	.00	.0007-	.0008	.001
10	6.01	6.34	1.076	.1833	.143-	.00	.00	.0006-	.0001	.001
11	8.01	8.39	1.218	.2147	.127-	.00	.00	.0002-	.0002-	.003
13	10.03	10.44	1.333	.2506	.109-	.00	.00	.0008-	.0004	.002
14	12.01	12.46	1.452	.2903	.092-	.00	.00	.0013-	.0017	.000
15	14.02	14.49	1.521	.3323	.063-	.00	.00	.0018-	.0034	.002-
16	16.01	16.50	1.567	.3726	.031-	.00	.00	.0015-	.0063	.007-
17	18.02	18.45	1.371	.4707	.042-	.00	.00	.0063	.0178-	.011
18	20.01	20.42	1.316	.5326	.072-	.00	.00	.0011-	.0008	.016-

DATE 11/19/62

REF 343-1

120.0

51-0

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AXES				STAB				TEST	DATE
		MOMENT AXES				STAB				343-1	11/19/62
Pt	α_t	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	52-0	120.0
2	8.01-	7.99-	.091	.0028-	.221-	.00	.00	.0009-	.0094		
4	6.03-	5.96-	.238	.0633	.220-	.00	.00	.0006-	.0086		
5	4.03-	3.91-	.384	.0724	.209-	.00	.00	.0004-	.0087		
6	2.03-	1.87-	.514	.0841	.195-	.00	.00	.0007-	.0080		
7	.00-	.20	.646	.1002	.179-	.00	.00	.0010-	.0072		
8	2.00	2.24	.773	.1168	.162-	.00	.00	.0013-	.0067		
9	4.01	4.29	.904	.1415	.146-	.00	.00	.0016-	.0063		
10	6.01	6.33	1.043	.1699	.130-	.00	.00	.0021-	.0066		
11	8.00	8.36	1.171	.2000	.114-	.00	.00	.0022-	.0066		
12	10.01	10.42	1.302	.2348	.097-	.00	.00	.0029-	.0067		
13	12.03	12.47	1.417	.2757	.078-	.00	.00	.0035-	.0078		
14	14.00	14.46	1.488	.3186	.051-	.00	.00	.0044-	.0107		
16	18.00	18.42	1.356	.4565	.031-	.00	.00	.0023	.0116-		
17	20.01	20.41	1.285	.5062	.068-	.00	.00	.0055-	.0009-		
19	16.00	16.47	1.516	.3527	.018-	.00	.00	.0046-	.0145		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		TEST 343-1		DATE 11/19/62	
		TEST 343-2		DATE 120.0	
		TEST 343-3		DATE 120.0	
		TEST 343-4		DATE 120.0	
		TEST 343-5		DATE 120.0	
		TEST 343-6		DATE 120.0	
		TEST 343-7		DATE 120.0	
		TEST 343-8		DATE 120.0	
		TEST 343-9		DATE 120.0	
		TEST 343-10		DATE 120.0	
		TEST 343-11		DATE 120.0	
		TEST 343-12		DATE 120.0	
		TEST 343-13		DATE 120.0	
		TEST 343-14		DATE 120.0	
		TEST 343-15		DATE 120.0	
		TEST 343-16		DATE 120.0	
		TEST 343-17		DATE 120.0	
		TEST 343-18		DATE 120.0	
		TEST 343-19		DATE 120.0	
		TEST 343-20		DATE 120.0	
		TEST 343-21		DATE 120.0	
		TEST 343-22		DATE 120.0	
		TEST 343-23		DATE 120.0	
		TEST 343-24		DATE 120.0	
		TEST 343-25		DATE 120.0	
		TEST 343-26		DATE 120.0	
		TEST 343-27		DATE 120.0	
		TEST 343-28		DATE 120.0	
		TEST 343-29		DATE 120.0	
		TEST 343-30		DATE 120.0	
		TEST 343-31		DATE 120.0	
		TEST 343-32		DATE 120.0	
		TEST 343-33		DATE 120.0	
		TEST 343-34		DATE 120.0	
		TEST 343-35		DATE 120.0	
		TEST 343-36		DATE 120.0	
		TEST 343-37		DATE 120.0	
		TEST 343-38		DATE 120.0	
		TEST 343-39		DATE 120.0	
		TEST 343-40		DATE 120.0	
		TEST 343-41		DATE 120.0	
		TEST 343-42		DATE 120.0	
		TEST 343-43		DATE 120.0	
		TEST 343-44		DATE 120.0	
		TEST 343-45		DATE 120.0	
		TEST 343-46		DATE 120.0	
		TEST 343-47		DATE 120.0	
		TEST 343-48		DATE 120.0	
		TEST 343-49		DATE 120.0	
		TEST 343-50		DATE 120.0	
		TEST 343-51		DATE 120.0	
		TEST 343-52		DATE 120.0	
		TEST 343-53		DATE 120.0	
		TEST 343-54		DATE 120.0	
		TEST 343-55		DATE 120.0	
		TEST 343-56		DATE 120.0	
		TEST 343-57		DATE 120.0	
		TEST 343-58		DATE 120.0	
		TEST 343-59		DATE 120.0	
		TEST 343-60		DATE 120.0	
		TEST 343-61		DATE 120.0	
		TEST 343-62		DATE 120.0	
		TEST 343-63		DATE 120.0	
		TEST 343-64		DATE 120.0	
		TEST 343-65		DATE 120.0	
		TEST 343-66		DATE 120.0	
		TEST 343-67		DATE 120.0	
		TEST 343-68		DATE 120.0	
		TEST 343-69		DATE 120.0	
		TEST 343-70		DATE 120.0	
		TEST 343-71		DATE 120.0	
		TEST 343-72		DATE 120.0	
		TEST 343-73		DATE 120.0	
		TEST 343-74		DATE 120.0	
		TEST 343-75		DATE 120.0	
		TEST 343-76		DATE 120.0	
		TEST 343-77		DATE 120.0	
		TEST 343-78		DATE 120.0	
		TEST 343-79		DATE 120.0	
		TEST 343-80		DATE 120.0	
		TEST 343-81		DATE 120.0	
		TEST 343-82		DATE 120.0	
		TEST 343-83		DATE 120.0	
		TEST 343-84		DATE 120.0	
		TEST 343-85		DATE 120.0	
		TEST 343-86		DATE 120.0	
		TEST 343-87		DATE 120.0	
		TEST 343-88		DATE 120.0	
		TEST 343-89		DATE 120.0	
		TEST 343-90		DATE 120.0	
		TEST 343-91		DATE 120.0	
		TEST 343-92		DATE 120.0	
		TEST 343-93		DATE 120.0	
		TEST 343-94		DATE 120.0	
		TEST 343-95		DATE 120.0	
		TEST 343-96		DATE 120.0	
		TEST 343-97		DATE 120.0	
		TEST 343-98		DATE 120.0	
		TEST 343-99		DATE 120.0	
		TEST 343-100		DATE 120.0	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										STAB		TEST 343-1		DATE 11/19/52	
FORCE AXES										MOMENT AXES		CUM		CUM	
Pt	α	C_L	C_D	C_M	ψ_L	ψ	C_H	C_V	C_C						
2	8.00	8.01	.047	.0705	.110	.00	.00	.0023	.0023	.0023	.0023	.0023	.0023	.0023	.0023
3	6.00	5.77	.202	.0723	.138	.00	.00	.0020	.0012	.0012	.0012	.0012	.0012	.0012	.0012
4	4.00	3.92	.346	.0512	.154	.00	.00	.0041	.0033	.0033	.0033	.0033	.0033	.0033	.0033
5	2.01	1.65	.481	.0021	.160	.00	.00	.0040	.0002	.0002	.0002	.0002	.0002	.0002	.0002
6	.00	.19	.620	.1966	.154	.00	.00	.0027	.0000	.0000	.0000	.0000	.0000	.0000	.0000
7	2.01	2.27	.775	.1255	.190	.00	.00	.0024	.0016	.0016	.0016	.0016	.0016	.0016	.0016
9	4.00	4.31	.902	.1475	.204	.00	.00	.0017	.0014	.0014	.0014	.0014	.0014	.0014	.0014
9	6.01	6.34	1.057	.1768	.210	.00	.00	.0016	.0017	.0017	.0017	.0017	.0017	.0017	.0017
11	6.02	8.30	1.203	.2092	.213	.00	.00	.0016	.0021	.0021	.0021	.0021	.0021	.0021	.0021
12	10.02	10.43	1.332	.2460	.220	.00	.00	.0015	.0032	.0032	.0032	.0032	.0032	.0032	.0032
13	12.02	12.47	1.457	.2532	.221	.00	.00	.0015	.0005	.0005	.0005	.0005	.0005	.0005	.0005
14	14.00	14.69	1.577	.3470	.212	.00	.00	.0015	.0021	.0021	.0021	.0021	.0021	.0021	.0021
15	16.01	15.52	1.647	.3375	.212	.00	.00	.0017	.0005	.0005	.0005	.0005	.0005	.0005	.0005
16	18.01	18.46	1.452	.4939	.213	.00	.00	.0030	.0145	.0145	.0145	.0145	.0145	.0145	.0145
17	20.00	20.46	1.375	.5477	.200	.00	.00	.0011	.0017	.0017	.0017	.0017	.0017	.0017	.0017

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET																	FORCE AXIS	STAB	MOMENT AXIS		STAB	TEST 343-1	DATE 11/15/59
PT	α_1	α	C_L	C_D	C_M	ψ_L	ψ	C_n	C_y	C_c													
2	8.52-	8.52-	.995	.5772	.025-	.00	.00	.0041	.0023-	.013-													
3	6.03-	7.99-	.150	.0765	.023-	.00	.00	.0056	.0005-	.020-													
4	4.02-	3.93-	.300	.0837	.043-	.00	.00	.0066	.0012-	.021-													
6	2.02-	1.89-	.444	.0927	.050-	.00	.00	.0055	.0014-	.010-													
7	.00	.1E	.578	.1052	.070-	.00	.00	.0053	.0004-	.009-													
8	2.02	2.24	.715	.123E	.081-	.00	.00	.0049	.0012-	.007-													
9	4.03	4.29	.856	.143E	.089-	.00	.00	.0036	.0016-	.006-													
10	5.02	6.33	1.000	.1703	.097-	.00	.00	.0022	.0022-	.002-													
11	5.01	5.36	1.140	.1999	.102-	.00	.00	.0033	.0022-	.002-													
12	10.02	10.42	1.260	.2376	.106-	.00	.00	.0032	.0024-	.002-													
13	12.01	12.44	1.395	.2735	.106-	.00	.00	.0029	.0008-	.005-													
15	14.02	14.50	1.528	.3354	.103-	.00	.00	.0026	.0017	.009-													
16	16.01	16.50	1.582	.3757	.096-	.00	.00	.0027	.0049	.015-													
17	18.02	18.43	1.308	.4789	.106-	.00	.00	.0006-	.0025	.022-													
18	20.00	20.42	1.349	.5326	.136-	.00	.00	.0022	.0009-	.050-													

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α_i	α	FORCE AXES				STAR		TEST	DATE
			C_L	C_D	C_M	ψ_i	ψ	C_N		
									942-1	11/19/62
									56-C	120.0
2	3.02-	3.03-	.061-	.0727	.001-	.00	.00	.0026	.0003-	.011-
3	3.02-	3.00-	.072	.0717	.004-	.00	.00	.0066	.0003-	.027-
4	4.02-	3.96-	.217	.0754	.020-	.00	.00	.0046	.0012-	.014-
5	3.03-	1.92-	.350	.0836	.034-	.00	.00	.0045	.0016-	.016-
6	.02	.17	.456	.0949	.051-	.00	.00	.0053	.0016-	.009-
7	2.02	2.22	.644	.1094	.063-	.00	.00	.0052	.0004-	.011-
8	4.01	4.25	.774	.1245	.072-	.00	.00	.0036	.0011-	.004-
10	6.02	6.31	.926	.1525	.079-	.00	.00	.0033	.0014-	.004-
11	8.01	8.34	1.069	.1805	.082-	.00	.00	.0029	.0018-	.003-
12	10.01	10.26	1.155	.2125	.086-	.00	.00	.0022	.0020-	.003-
13	12.01	12.42	1.324	.2481	.086-	.00	.00	.0021	.0015-	.003-
14	14.02	14.47	1.440	.3024	.081-	.00	.00	.0023	.0016-	.007-
15	16.02	16.48	1.465	.3765	.078-	.00	.00	.0024-	.0142-	.005
16	18.00	18.43	1.385	.4425	.091-	.00	.00	.0017	.0160-	.000-
17	20.01	20.42	1.324	.4973	.122-	.00	.00	.0005-	.0108-	.031-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PI	α	FORCE AREA				STATION				TEST	DATE
		C_L	C_D	C_M	ψ	ψ_1	ψ_2	ψ_3	ψ_4		
2	3.02-	3.04-	.076-	.0794	.040	.00	.00	.00	.0029	57-0	11/19/62
3	5.00-	5.99-	.057	.0775	.040	.00	.00	.00	.0028		
4	4.02-	7.96-	.194	.0805	.029	.00	.00	.00	.0025		
5	3.02-	1.92-	.337	.0875	.012	.00	.00	.00	.0017		
6	.02-	.12	.472	.0969	.006	.00	.00	.00	.0006		
8	2.01	2.20	.618	.1110	.005-	.00	.00	.00	.0003		
9	4.02	3.25	.758	.1292	.015-	.00	.00	.00	.0003		
10	5.02	6.30	.901	.1522	.020-	.00	.00	.00	.0001-		
11	3.00	3.32	1.026	.1800	.026-	.00	.00	.00	.0000-		
12	10.00	10.36	1.170	.2116	.027-	.00	.00	.00	.0000-		
13	12.00	12.40	1.252	.2458	.026-	.00	.00	.00	.0021-		
14	14.01	14.45	1.412	.2977	.020-	.00	.00	.00	.0016-		
15	16.02	16.48	1.446	.3593	.016-	.00	.00	.00	.0024-		
16	18.02	18.45	1.350	.4316	.032-	.00	.00	.00	.0005		
17	20.01	20.41	1.301	.4860	.072-	.00	.00	.00	.0014-		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										
FORCE AXES										
MOMENT AXES										
STAD										
STAL										
Pt	α_t	α	C_L	C_D	C_m	ψ_L	ψ	C_n	C_L	C_C
2	5.00-	6.12-	.403-	.0526	.054	.00	.00	.0016	.0015	.017-
3	5.03-	6.12-	.304-	.0409	.050	.00	.00	.0034	.0014	.024-
4	4.02-	4.07-	.182-	.0335	.042	.00	.00	.0046	.0013	.024-
5	2.02-	2.03-	.052-	.0301	.032	.00	.00	.0053	.0001-	.015-
6	.01-	.01	.072	.0303	.021	.00	.00	.0051	.0003	.014-
8	2.04	2.10	.191	.0342	.014	.00	.00	.0043	.0005	.000-
9	4.01	4.11	.326	.0416	.000	.00	.00	.0024	.0007	.000-
10	6.03	6.17	.470	.0521	.000-	.00	.00	.0022	.0000	.000-
11	8.05	8.21	.556	.0642	.016-	.00	.00	.0010	.0000	.000-
12	10.01	10.22	.720	.0824	.027-	.00	.00	.0010	.0005	.002-
13	12.00	12.26	.847	.1028	.034-	.00	.00	.0005	.0006-	.002-
14	14.01	14.31	.959	.1249	.041-	.00	.00	.0000	.0010-	.002-
15	15.01	15.32	1.009	.1674	.052-	.00	.00	.0002	.0012	.002-
16	13.03	13.35	1.026	.2340	.085-	.00	.00	.0041-	.0013-	.000-
17	20.01	20.31	.927	.3022	.100-	.00	.00	.0002	.0017-	.030-

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

		FORCE AREAS				STAG		TEST 342-1		DATE 11/19/62	
		MOMENT AREAS				STAG		RUN 55-1			
Pt	α	C_L	C_D	C_M	ψ_L	ψ	C_N	C_L	C_C		
3	5.02-	5.11-	.307-	.0414	.037	.00	.0024	.0004-	.011-		
4	4.02-	4.07-	.0326	.032	.00	.00	.0051	.0015-	.010-		
5	2.02-	2.03-	.0301	.026	.00	.00	.0052	.0009-	.011-		
7	.00	.02	.0304	.017	.00	.00	.0046	.0002-	.008-		
8	2.03	2.08	.0338	.012	.00	.00	.0042	.0001	.009-		
9	4.01	4.10	.0414	.006	.00	.00	.0034	.0007	.006-		
10	6.01	6.15	.0500	.001-	.00	.00	.0020	.0006	.003-		
11	9.03	9.21	.0646	.004-	.00	.00	.0016	.0013	.004-		
12	17.00	17.22	.0809	.009-	.00	.00	.0009	.0014	.001-		
13	12.00	12.25	.1016	.014-	.00	.00	.0005	.0004	.000-		
14	14.01	14.30	.1266	.020-	.00	.00	.0004	.0006	.000-		
15	15.01	15.32	.1630	.024-	.00	.00	.0002	.0033	.004-		
16	13.00	13.29	.2398	.034-	.00	.00	.0000	.0246-	.001		
17	27.02	27.32	.3057	.084-	.00	.00	.0001	.0015	.010-		

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET												
PT	α_f	α	C_L	C_D	FORCE AREA		STAF		TEST	342-1	DATE	11/19/62
					C_m	ψ_L	ψ	C_n				
2	.00	.03	.111	.0226	.046	2.03	12.03		.0210	.0016	.168	120.0
3	.00	.03	.105	.0250	.032	12.02	12.02		.0188	.0016	.147	
4	.00	.02	.095	.0281	.016	2.03	2.03		.0153	.0018	.114	
5	.00	.02	.089	.0284	.002	2.00	2.00		.0128	.0017	.087	
6	.00	.02	.078	.0307	.008	2.02	2.02		.0086	.0008	.058	
7	.00	.02	.078	.0306	.014	2.02	2.02		.0027	.0008	.027	
8	.00	.01	.062	.0308	.020	.01	.01		.0049	.0000	.011	
9	.00	.02	.075	.0315	.015	2.02	2.02		.0011	.0007	.01	
10	.00	.02	.071	.0316	.012	2.01	2.01		.0027	.0017	.042	
11	.00	.02	.077	.0303	.004	2.01	2.01		.0076	.0027	.072	
12	.00	.02	.084	.0289	.011	2.00	2.00		.0103	.0035	.101	
13	.00	.03	.097	.0276	.024	12.01	12.01		.0142	.0030	.129	
14	.00	.03	.112	.0249	.046	12.03	12.03		.0188	.0040	.162	
15	.00	.02	.071	.0310	.014	2.02	2.02		.0020	.0012	.020	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET											
FORCE AREAS STAP											
MOMENT AREAS STAP											
Pt	α_f	α	C_L	C_D	C_m	ψ_L	ψ	C_H	C_f	C_C	
2	3.01-	6.10-	.312-	.0403	.036	.01	.01	.0024	.0027-	.012-	1209.0
3	4.03-	4.08-	.182-	.0320	.031	.01	.01	.0050	.0014-	.005-	
5	2.03-	2.04-	.060-	.0294	.023	.01	.01	.0050	.0012-	.000-	
7	.03-	.01-	.066	.0291	.017	.01	.01	.0021	.0000-	.006-	
8	2.02	2.07	.186	.0321	.011	.01	.01	.0043	.0002	.010-	
9	4.00	4.09	.310	.0402	.005	.01	.01	.0022	.0010	.007-	
10	5.02	4.16	.452	.0501	.001-	.01	.01	.0020	.0008	.005-	
11	5.04	4.22	.582	.0624	.005-	.01	.01	.0017	.0010	.004-	
14	10.01	10.23	.700	.0790	.011-	.01	.01	.0010	.0010	.002-	
15	12.03	12.29	.827	.1011	.015-	.00	.00	.0004	.0008	.000-	
16	14.02	14.31	.945	.1246	.018-	.00	.00	.0005	.0000	.000-	
17	16.01	16.33	1.027	.1610	.010-	.00	.00	.0005	.0051	.007-	
18	18.00	18.29	.945	.2457	.032-	.00	.00-	.0071	.0226-	.006	
19	20.03	20.31	.902	.3094	.070-	.00	.00-	.0015-	.0010-	.000	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

LOW-SPEED WIND TUNNEL FINAL DATA SHEET										STAR	TEST 343-1	DATE 11/13/62
FORCE AXES										STAR	RUN 62-C	
MOMENT AXES												
PI	α	C_L	C_D	C_m	ψ_L	ψ	C_R	C_I	C_C			
2	3.00-	.321-	.0397	.042	.00	.00	.0040	.0000-	.020-			
3	4.03-	.190-	.0310	.033	.00	.00	.0052	.0010-	.015-			
4	2.02-	.076-	.0280	.026	.00	.00	.0052	.0005-	.012-			
6	.03-	.051	.0270	.019	.00	.00	.0043	.0004-	.000-			
7	2.02	.169	.0312	.016	.00	.00	.0041	.0003	.008-			
8	4.00	.300	.0379	.010	.00	.00	.0024	.0000	.000-			
9	5.01	.444	.0462	.003	.00	.00	.0021	.0013	.004-			
10	8.00	.578	.0616	.002-	.00	.00	.0015	.0016	.001-			
11	10.00	.698	.0779	.005-	.00	.00	.0010	.0021	.001-			
12	12.03	.821	.0978	.008-	.00	.00	.0006	.0020	.001-			
14	14.01	.947	.1206	.010-	.00	.00	.0004	.0007	.000-			
15	15.02	1.017	.1621	.015-	.00	.00	.0006	.0060	.001-			
16	15.00	.922	.2536	.045-	.00	.00	.0016-	.0078-	.005-			
17	20.00	.888	.3064	.078-	.00	.00	.0027-	.0016	.012-			

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α	FORCE AXES			MOMENT AXES			ψ	TEST			DATE
		C_L	C_D	C_M	C_{L_1}	C_{M_1}	C_{M_2}		C_N	C_F	C_C	
2	3.00	.003	.0814	.051	.00	.00	.00	.00	.0003	.0011	.000	11/10/02
3	5.00	.003	.0811	.055	.00	.00	.00	.00	.0010	.0020	.007	12/01/02
4	7.00	.003	.0532	.055	.00	.00	.00	.00	.0000	.0021	.000	
5	2.00	1.80	.0898	.052	.00	.00	.00	.00	.0008	.0027	.002	
6	.00	.10	.0993	.048	.00	.00	.00	.00	.0007	.0023	.002	
7	2.00	2.24	.1129	.040	.00	.00	.00	.00	.0006	.0014	.000	
8	4.00	1.24	.1308	.038	.00	.00	.00	.00	.0004	.0017	.000	
9	6.00	6.30	.1535	.032	.00	.00	.00	.00	.0002	.0000	.000	
10	8.00	8.33	.1802	.027	.00	.00	.00	.00	.0003	.0003	.002	
11	10.00	10.37	.2115	.019	.00	.00	.00	.00	.0001	.0006	.001	
12	12.00	12.40	.2437	.010	.00	.00	.00	.00	.0001	.0007	.000	
13	14.00	14.40	.2925	.000	.00	.00	.00	.00	.0002	.0002	.000	
14	16.00	16.47	.3500	.010	.00	.00	.00	.00	.0001	.0109	.017	
15	18.00	18.44	.4301	.026	.00	.00	.00	.00	.0000	.0164	.014	
16	20.00	20.42	.4837	.016	.00	.00	.00	.00	.0002	.0096	.017	

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

Pt	α	SOOT ARDS			STAD		WST		DATE	
		C_L	C_D	C_M	ψ	ψ	C_L	C_D		
										120.0
2	.01	.522	.0582	.112	10.01	10.00	.037	.012		
3	.06	.527	.0800	.090	10.01	10.01	.030	.0112		.164
4	.06	.520	.0922	.083	9.03	9.03	.028	.0091		.131
5	.06	.518	.0920	.071	8.02	8.02	.016	.0069		.094
6	.06	.502	.0960	.060	7.03	7.03	.009	.0042		.061
7	.06	.502	.0931	.053	6.02	6.02	.004	.0010		.031
8	.06	.492	.0904	.048	5.01	5.01	.007	.0019		.002
10	.06	.460	.0901	.051	3.01	3.01	.0026	.0027		.027
11	.06	.502	.0970	.055	4.00	4.00	.0000	.0000		.000
13	.06	.511	.0952	.070	6.00	6.00	.012	.0080		.080
14	.06	.518	.0926	.080	8.00	8.00	.0102	.0107		.126
15	.06	.523	.0903	.095	10.00	10.00	.0260	.0130		.150
16	.06	.551	.0882	.112	12.00	12.00	.0322	.0183		.183

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

PT	α	1000 AXIS				STAR				WIT 342-7				DAT 11/19/62			
		MOMENT AXIS				ST44				SUM 64-0				1			
		C_L	C_D	C_M	ψ_L	ψ	C_n	C_f	C_c								
2	3.01	8.02	.0807	.048	.00	.00	.0016	.0041	.008								
3	5.03	6.01	.0882	.034	.00	.00	.0002	.0026	.011								
4	4.02	7.96	.0913	.022	.00	.00	.0010	.0016	.004								
5	2.00	1.93	.0955	.017	.00	.00	.0015	.0022	.004								
6	.01	.10	.1040	.012	.00	.00	.0000	.0010	.001								
7	2.01	2.20	.1104	.004	.00	.00	.0000	.0013	.002								
8	4.01	4.24	.1326	.009	.00	.00	.0006	.0014	.001								
9	5.02	6.29	.1544	.011	.00	.00	.0001	.0004	.001								
10	3.02	3.23	.1795	.017	.00	.00	.0001	.0001	.001								
11	10.00	10.00	.2084	.020	.00	.00	.0000	.0010	.000								
12	12.00	12.44	.2430	.038	.00	.00	.0004	.0016	.001								
13	14.01	14.44	.2910	.042	.00	.00	.0002	.0010	.002								
16	14.01	14.44	.3540	.057	.00	.00	.0002	.0170	.012								
17	13.02	13.43	.4264	.067	.00	.00	.0020	.0150	.011								
18	20.01	20.41	.4820	.095	.00	.00	.0006	.0060	.012								

LOW-SPEED WIND TUNNEL FINAL DATA SHEET

TEST AXIS		STAR		TEST		DATE	
MOMENT AXIS		STAR		RUN		12/19/62	
Pt	α	C_L	C_D	C_m	ψ	C_H	C_F
2	3.02-	.028-	.0762	.081-	.00-	.0007	.0013
3	5.02-	.102	.0748	.082-	.00-	.0014	.0014
4	4.02-	.240	.0794	.097-	.00-	.0024	.0024
5	2.01-	.376	.0861	.097-	.00-	.0013	.0024
7	.00	.520	.0957	.084-	.00-	.0013	.0024
9	2.01	.652	.1100	.079-	.00-	.0006	.0013
10	3.02	.704	.1222	.077-	.00-	.0001	.0016
11	5.00	.922	.1521	.050-	.00-	.0002-	.0012-
12	3.00	1.060	.1811	.062-	.00-	.0002-	.0001-
13	10.00	1.179	.2110	.057-	.00-	.0003	.0001-
14	12.00	1.307	.2465	.047-	.00-	.0003	.0011-
15	14.00	1.432	.3004	.038-	.00-	.0001-	.0009-
16	15.01	1.453	.3603	.027-	.00-	.0000-	.0012-
17	12.01	1.327	.4373	.010-	.00-	.0000	.0000-
18	12.01	1.308	.4914	.042-	.00-	.0000	.0001-

4.0 APPENDIX

4.1 NOMENCLATURE

Definition of Tests

P	Pitch Test; pitch angle variation ($\psi_g = \text{constant}$). Subscript 6 indicates that six-component force and moment data were recorded.
Y	Yaw Test; yaw angle variation ($\alpha_g = \text{constant}$). Subscript 6 indicates that six-component force and moment data were recorded.
HM	Hinge Moment; denotes that hinge moment data were recorded at each model test point. The left flap, left aileron, left elevator and the rudder were instrumented.
Press	Pressure; denotes that pressure data were recorded at each model test point. The model was instrumented with orifices, five 48-port Scanivalves, and pressure transducers for digitized punched card output.
Duct Press	Duct Pressure; denotes that duct exit pressure data were recorded at each model test point from a rake and wall static orifices at the duct exit. These data also were read through the Scanivalve and transducer system.
Plx	Tuft Plx; visible flow patterns recorded photographically at each model test angle. Flow patterns were made visible by affixing two strand floss tufts to the model by means of cellophane tape.

Coefficients

NOTE: Model force and moment coefficients presented on the figures in this report are referred to stability axes through the model moment reference center as shown in Figure 4.15

- C_L Lift coefficient, Lift/qS to stability axes, or normal force coefficient on body axes tabulations.
- C_D Drag coefficient, Drag/qS to stability axes, or axial force coefficient on body axes tabulations.
- C_m Pitching moment coefficient, Pitching moment/qS \bar{c} .
- C_l Rolling moment coefficient, Rolling moment/qSb.
- C_C Side-force coefficient, Side-force/qS to stability axes and on body axes tabulations.
- C_n Yawing moment coefficient, Yawing moment/qSb.

Sta. 30.75 Subscript "Sta. 30.75" on moment coefficients indicates that the longitudinal location of the model moment reference center is at model station 30.75 with the vertical location as shown in the moment reference diagram in Figure 4.15.

NOTE: A_f , c_f , A_a , c_a , A_e , c_e , A_r and c_r are explicitly defined in "Data Reduction Reference Dimensions" in Section 4.4.

- C_{h_f} Flap hinge moment coefficient, Flap hinge moment/q $A_f c_f$, identified on tabulations as CH. M F.
- C_{h_a} Aileron hinge moment coefficient, Aileron hinge moment/q $A_a c_a$, identified on tabulations as CH. M A.
- C_{h_e} Elevator Hinge moment coefficient, Elevator hinge moment/q $A_e c_e$, identified on tabulations as CH. M E.

C_{h_r} Rudder hinge moment coefficient, Rudder hinge moment/
 $q A_r c_r$, identified on tabulations as CH. M R.

$\frac{p - p_o}{q_o}$ Pressure coefficient where p is the measured local pressure
and p_o is the test-section free-stream static pressure,
and q_o equals q ; on the tabulated pressure coefficients this
is noted as PR; also noted as $\Delta p/q$.

Symbols

α_g Geometric angle of attack of the model wing reference
plane relative to the tunnel axis. (Degrees); noted as
ALF. G on tabulated hinge moment coefficients and tabu-
lated pressure coefficients.

α Angle of attack of the model wing reference plane relative
to the equivalent free air stream (Degrees).

ψ_g Geometric angle of yaw of the model plane of symmetry
relative to the tunnel axis. (Degrees); noted as PSI. G
on tabulated hinge moment coefficients and tabulated
pressure coefficients.

δ_f° Flap deflection in degrees relative to the wing reference
plane.

δ_a° Aileron deflection in degrees relative to the wing reference
plane, positive when the trailing edge is down and noted
individually L/R, Left/Right.

δ_e° Elevator deflection in degrees relative to the horizontal
tail reference plane, positive when the trailing edge is
down.

δ_r° Rudder deflection in degrees relative to the vertical tail
reference plane, positive when the trailing edge is to the
left.

q_m Uncorrected dynamic pressure.

q Dynamic pressure, $\rho V^2/2$.

R. N. Reynolds Number (2.21 million for this test) = $\rho V \bar{c} / \mu$
where ρ is the mass density of air, μ is the absolute
viscosity of air, and V and \bar{c} are as defined elsewhere in
this report.

x/c Symbol denoting wing orifice location, the distance aft from the wing leading edge expressed as a decimal fraction of the local chord; on the tabulated pressure coefficients x/c is noted under column heading K 1., K 2., and K 3., and is expressed as a percent of the local chord.

V Average airstream velocity, $\sqrt{2q/\rho}$.

4.2 DESCRIPTION OF MODEL COMPONENTS

Symbol

a_0 Aileron

a_1 Aileron: Same as a_0 except rounded (in chordwise section) at leading edge of outboard end.

B_0 Fuselage: With canopy and overhead jet intake with simulated ducts.

D_0 All landing gear doors.

M_0^f Main Landing Gear: Superscript f denotes forward location, Fuselage Station 34.40.

N_0 Nose Landing Gear: Located at Fuselage Station 17.10.

F_0 Trailing Edge Flaps: Fowler-type flaps extending spanwise from Wing Station 3.00 to Wing Station 12.594.

F_1 Wing Trailing Edge Flaps: Same as F_0 except with a 1.875 inch spanwise extension at the outboard end with the same constant section as F_0 . The constant section creates a discontinuity with the wing planform at the outboard end of the flap; there was also a discontinuity with the airfoil section at the outboard end of the flap because the wing was decreasing in thickness. Flap F_1 is accommodated only by Wing W_1 .

F_2 Wing Trailing Edge Flaps: Same as F_0 except with an end plate at the outboard end of the deflected flap; the end-plate extended approximately .5-inch above the flap upper surface and .5-inch below the flap lower surface.

- F_3 Wing Trailing Edge Flaps: Same as F_0 except with a constant 0.50-inch chordwise extension of sheet metal attached to the flap lower surface and faired to the flap with wax on both the upper and lower surfaces.
- F_4 Wing Trailing Edge Flaps: Same as F_0 except with a constant 0.25-inch chordwise extension of sheet metal attached to the flap lower surface and faired to the flap with wax on both the upper and lower surfaces.
- F_5 Wing Trailing Edge Flaps: Same as F_1 (extended spanwise) except with the flap gap reduced 0.0025-inch. This was accomplished by covering the flaps entirely with one thickness of cellophane tape, thus, the flap section is also slightly thickened.
- F_6 Wing Trailing Edge Flaps: Same as F_1 except with the flap gap reduced 0.029-inch. The additional layers of green fabric and cellophane tape were affixed only to the flap leading edge.
- F_7 Wing Trailing Edge Flaps: Same as F_1 except with the flap gap reduced 0.055-inch.
- f_1 Wing Fences: Wrap-around type, from wing trailing edge, around leading edge and back to trailing edge. Fence located at 94.5% wing semispan. The fence minimum height, 5% of the wing local chord, extended from the wing point of maximum thickness around the leading edge and back to the wing point of maximum thickness; from that point aft, the top and bottom edges were extended parallel to the wing chord plane. Designed on wing W_0 (outboard sections bent downward 6°) but tested on wing W_2 (bent upward 4°).
- f_2 Wing Fences: Same as f_1 except located at 73% wing semispan, and consequently larger.
- f_3 Wing Fences: Same as f_1 except located at 56.75% wing semispan, and consequently larger.
- g_0 Vortex Generators: Made in strips of vertical flat plate fins mounted at 16° to the chord of the strips. The individual fins had a height of 0.2-inch and a chord of 0.3-inch. Strips of vortex generators were mounted from the fuselage

to the wing tip junction. At the flap the trailing edge of the fins was approximately .07-inch forward of the flap cover plate trailing edge. From the break chord to the wing tip junction, the strip of vortex generators was swept forward so that at the wing tip junction, the trailing edge of the fins was approximately 1.45-inches forward of the wing trailing edge.

- g_1 Vortex Generators: Made in strips as described in g_0 , but mounted spanwise across the wing fan covers with the fin leading edges in line with Fuselage Station 32.0 (F. S. 256, full scale).
- H_0^x Horizontal Tail of tapered planform mounted for a "tee" tail at the top of the vertical tail; the pivot point for horizontal tail incidence is at Fuselage Station 62.073 and Water Line 25.125. The superscript denotes incidence, positive when the trailing edge is down, relative to the wing reference plane.
- H_1^x Horizontal Tail: Same as H_0 except with a straight lined 1.0-inch spanwise extension on each side for a total increase in span of 2.0 inches.
- H_2^x Horizontal Tail: Similar to H_0 except for section and location. Made of .25-inch flat plate with radius leading edge and tips and beveled trailing edge. H_2 was located at Water Line 19.325 (MAC of the vertical tail) with the trailing edges of the vertical and horizontal tails coincident at 0° incidence. The incidence pivot point was approximately in line with Fuselage Station 61.6 and Water Line 18.6. H_2 was tested without transition grit.
- IMAGE Reflection image of the two-strut support for tare evaluation. For the "wing alone" configuration the image included a center-mounted image sting.
- IMAGE STING Image Sting - Center mounted image sting for the "wing alone" configuration used in tare evaluation.
- INV Inverted: to denote model inverted in the test section.
- P_1 Orifice Plate Inserted at the engine intake with twin side-by-side orifices of 1.750-inch internal diameter.

- P_2 Orifice Plate: Same as P_1 except orifice internal diameter was 1.375 inch.
- R_0 Pressure Rake : Inserted at the aft end of the right-hand duct and instrumented with total head orifices. Static orifices were provided in the duct wall. The center of the rake was located at Fuselage Station 49.80.
- S_0^x Symbol designating simulated Wing Fan Cover configurations, on the wing upper surface, the simulated wing fan covers, when closed, form a bump that protrudes above the surface of the wing; on the lower surface the cover is characterized by the spanwise corrugations of retracted or closed louvers. The superscript denotes: W, with support struts, and N, without support struts.
- S_1^x Simulated Wing Fan Cover configuration, with superscripts as defined for S_0 . S_1 was tested only as S_1^N , without struts. S_1 denotes "bumps" on the upper surface and depressed louvers on the lower surface. The outboard edges of the louvers were depressed .10-inch below the wing surface.
- S_2^x Simulated Wing Fan Cover configuration, with superscripts as defined for S_0 . S_2 was tested only as S_2^N , without struts. S_2 denotes the "bumps" depressed condition on the wing upper surface and louvers on the lower surface depressed as per S_1 ; the outboard edges only of the upper surface bumps were depressed 0.10-inch below the wing surface.
- S_3^x Simulated Wing Fan Cover configuration, with superscripts as defined for S_0 . S_3 was tested only as S_3^N , without struts. S_3 denotes the absence of bumps on the wing upper surface and the presence of retracted louvers on the lower surface.
- S_4^x Simulated Wing Fan Covers: "Bumps" on the wing upper surface and simulated closed louvers on the wing lower surface. The height of the upper surface "bumps" was the same as S_0 of the first test phase, but the contour was altered to be a modified rectangle with a flat on the top; the edges and corners of the rectangular bump were faired; the chordwise to spanwise ratio was approximately 3:2. The superscript W denotes with struts, and superscript N denotes without struts.

TUFTS Tufts of two-strand floss affixed to the model with cellophane tape to observe and/or record visible flow patterns.

T₁ Transition Grit (Carborundum) on designated model parts except H₂ at all times. The superscript denotes fineness and varied only during the grit studies. During most of the test #150 grit was used exclusively. The pattern was as follows:

<u>Transition Grit Strip</u>	<u>Width</u>	<u>Location</u>
Wing at Root	1/2"	1/2" from L. E.
Wing at Break Chord	3/8"	3/8" from L. E.
Wing at Tip	1/4"	1/4" from L. E.
Vertical Tail at Root	3/8"	3/8" from L. E.
Vertical Tail at Tip	1/4"	1/4" from L. E.
Horizontal Tail at Root	3/8"	3/8" from L. E.
Horizontal Tail at Tip	1/4"	1/4" from L. E.
Duct	3/8"	3/8" from L. E.
Nose	1/2"	1-1/2" from Fus. Sta. Zero

T₂ Transition Strip of sheet aluminum .35-inch high mounted normal to the surface at Fuselage Station 26.47. The strip extended over the fuselage and duct intake on each side to the wing upper surface.

V₀ Vertical Tail of tapered planform with the rudder hinge line at the 82% chord line. The horizontal tail was attached to a vertical plate which inserted into the vertical tail in such a way that a portion of the vertical mounting plate was left exposed as a section of flat plate when the horizontal tail was on the model.

V₁ Vertical Tail: Same as V₀ except the horizontal tail mounting plate was faired with model wax to match the vertical tail airfoil section.

W₀ Wing: Generally tapered with rounded tips, the leading edge and trailing edge sweeps are increased at wing midsemi-span. The wing was designed to accommodate a vertical lift fan on each side of the fuselage and was equipped with ailerons and Fowler-type flaps, outboard of the wing break chord, the wing panels were bent downward 6°. The outboard panels were twisted (leading edge down) 3° from the break chord to the tip chord about the quarter-chord with non-linear distribution.

W_1 Wing: Same as W_0 except outboard panels are 0° , or "not bent downward", and it had no deflectable ailerons. This wing accommodates the spanwise extended flaps F_1 .

W_2 Wing: Same as W_0 except outboard panels were bent upward 4° ; there were no deflectable ailerons.

W_3 Wing: Same as W_2 except with outboard panels shimmed upward to 6° .

TABLE 4. 1

MODEL DIMENSIONAL DATA

1/8 SCALE RYAN CONVENTIONAL MODEL 143

Area (Theoretical)	4.068 sq. ft.
Root Chord (Theoretical)	18.125 in.
Tip Chord (Theoretical)	5.375 in.
Span	44.650 in.
Aspect Ratio	3.42
Mean Aerodynamic Chord	14.115 in.
Spanwise Location of Mean Aerodynamic Chord	B. L. 9.419
Leading Edge Sweep (Inboard Panel)	19° 40' (Ref)
Leading Edge Sweep (Outboard Panel)	37° "
Flap Area of Two Flaps	0.395 sq. ft.
Aileron Area Aft of the Hinge Line, of Two Ailerons	0.320 sq. ft.
Incidence	0°
Dihedral (Outboard Panels Only)	
W ₀	6° Tips Down
W ₁	0°
W ₂	4° Tips Up
W ₃	6° Tips Up
Fuselage	
Length	64.375 in.
Maximum Height	11.52 in.
Horizontal Tail - H ₀	
Area (Theoretical)	.792 sq. ft.
Root Chord	8.205 in.
Tip Chord	4.104 in.
Span	18.526 in.
Aspect Ratio	3.01
Mean Aerodynamic Chord	6.382 in.
Spanwise Location of Mean Aerodynamic Chord	B. L. 4.117
Leading Edge Sweep	14° 41' (Ref)
Elevator Area Aft of the Hinge Line, of Two Elevators	0.190 sq. ft.
Incidence	Variable
Horizontal Tail Incidence Pivot Point	Water Line 25.125 Fuselage Sta. 62.073
Leading Edge Sweep	14° 41' (Ref.)
Elevator Area Aft of the Hinge Line of Two Elevators	0.190 sq. ft.
Horizontal Tail - H ₁	
Area (Theoretical)	.846 sq. ft.
Root Chord	8.205 in.
Tip Chord	3.662 in.
Span	20.526 in.
Aspect Ratio	3.46
Mean Aerodynamic Chord	6.223 in.
Spanwise Location of Mean Aerodynamic Chord	B. L. 4.477
Leading Edge Sweep	14° 14'
Elevator Area Aft of the Hinge Line of Two Elevators	0.190 sq. ft.
Incidence	0°
Horizontal Tail Incidence Pivot Point- Water Line	25.125
Fuselage Sta.	62.073
Horizontal Tail - H ₂	
Tabulated Statistics are the same as H ₀ except	
Horizontal Tail Incidence Pivot Point - Water Line	18.6
Fuselage Sta.	61.6
And H ₂ had no elevator. H ₂ was made of .25-inch sheet aluminum.	
Vertical Tail (Without Dorsal Fin)	
Area	.797 sq. ft.
Root Chord (At Water Line 14.125)	12.990
Tip Chord (At Water Line 25.750)	6.750 in.
Span (Above Water Line 14.125)	11.625 in.
Aspect Ratio	1.18
Mean Aerodynamic Chord	10.199 in.
Spanwise Location of Mean Aerodynamic Chord	W. L. 19.325
Leading Edge Sweep	35°
Rudder Area Aft of the Hinge Line (82% Chord)	0.087 sq. ft.

4.3 MODEL GEOMETRY

STA. 20.000

10.12

57

NOTE

ALL DIMENSIONS ARE INCHES
MODEL SCALE.

STA. C.O.

STA. 26.25

19°00'

97°
(DEF.)

STA. 21.25

STA. C.O.

WS. 7.629

WS. 10.099

WS. 12.596

64.375

CONFIGURATION: B.W.F. S.W.V.H.
RYAN MODEL 143 (VERTIFAN)
1/8-SCALE CONVENTIONAL MODEL

A.

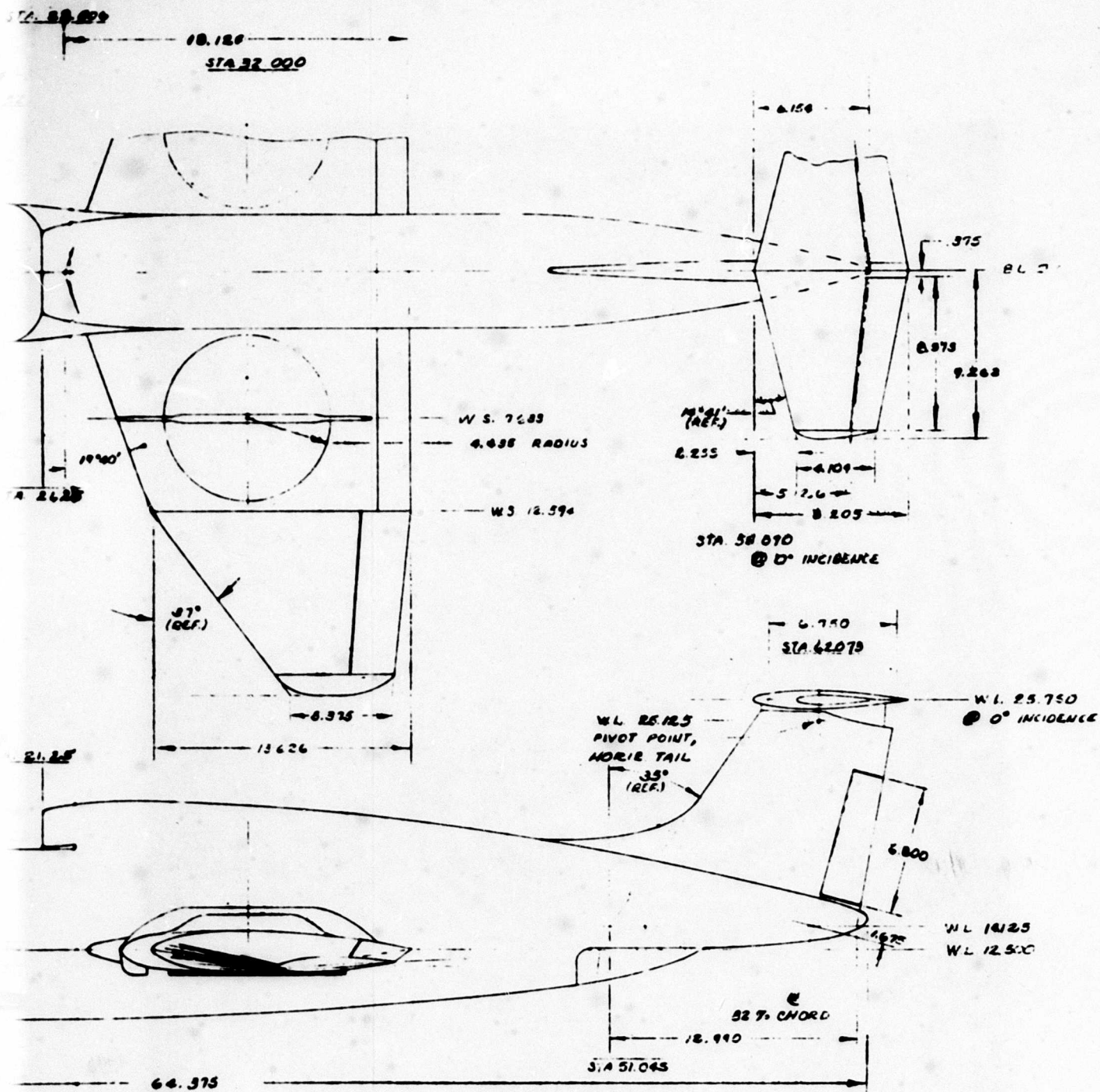


Figure 4.1

B.

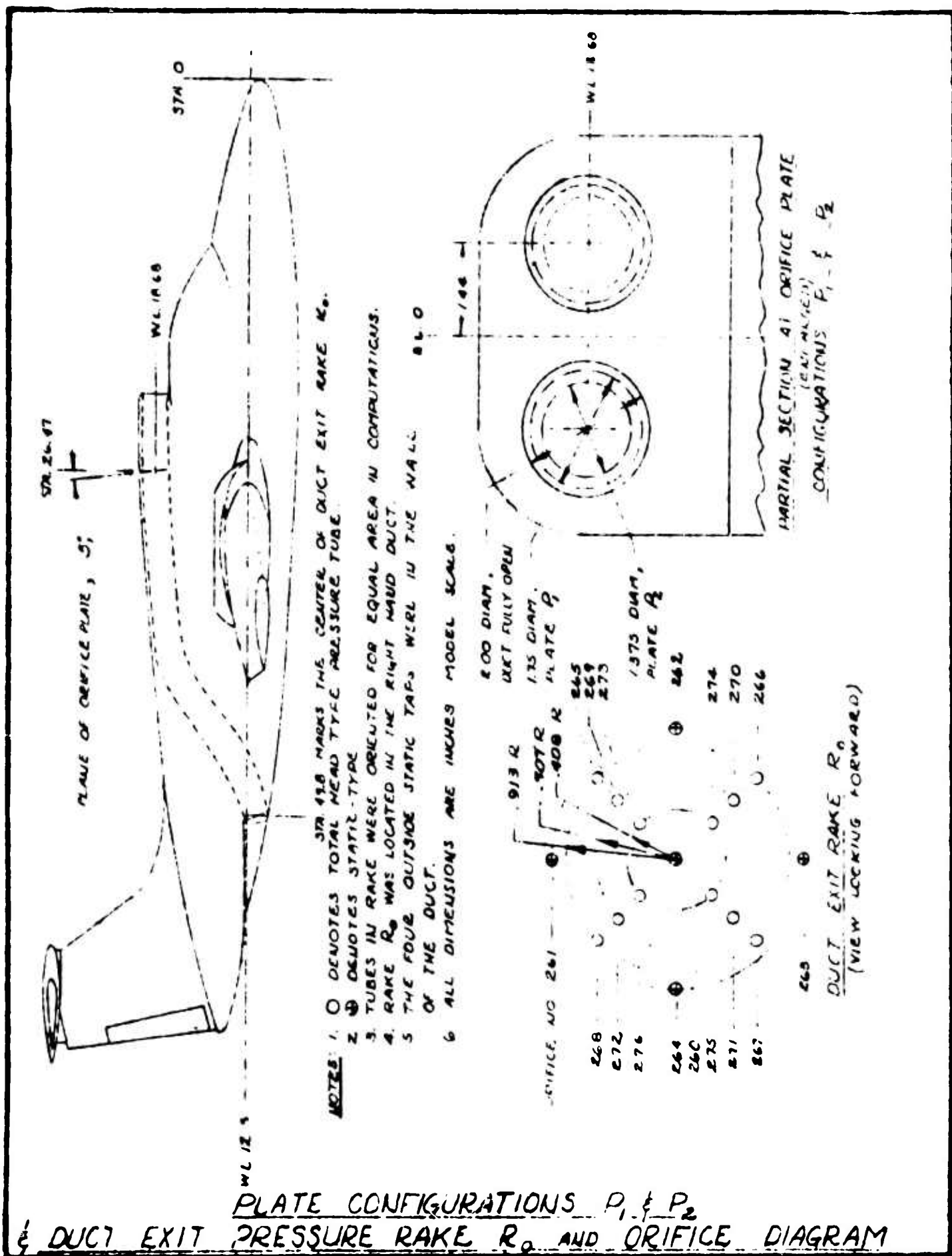


Figure 4.3

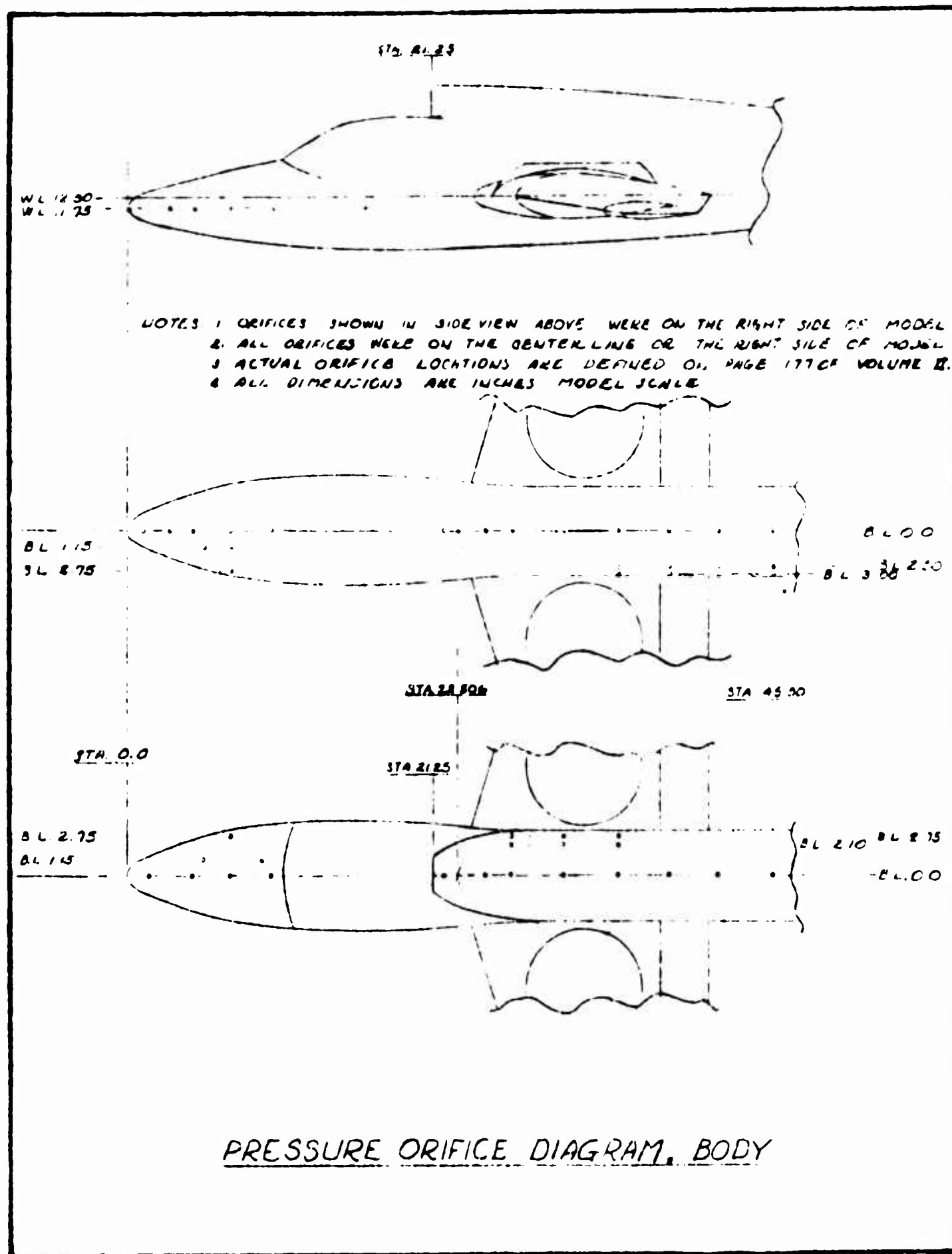
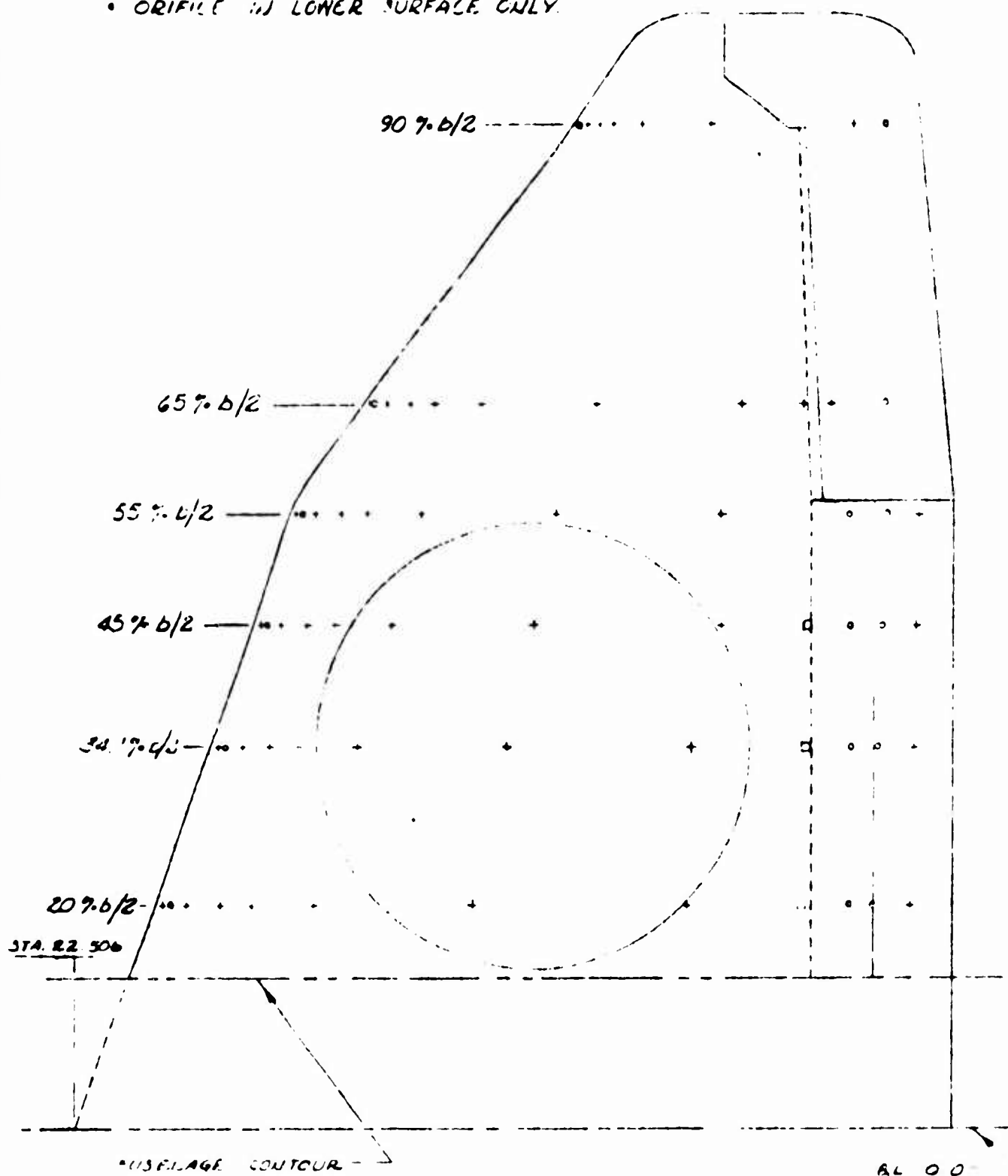


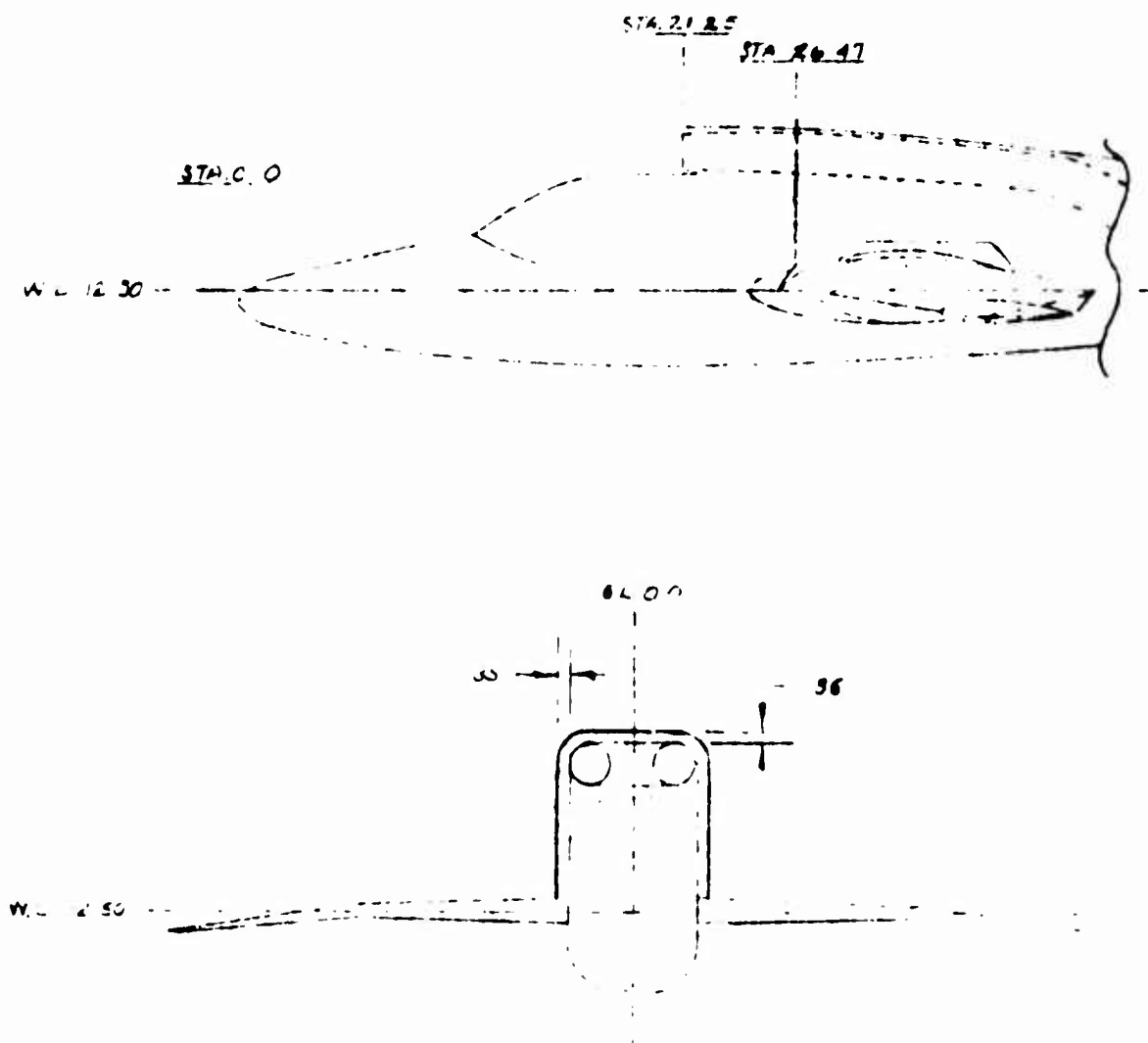
Figure 4.4

- NOTES • ORIFICES IN UPPER & LOWER SURFACES
• ORIFICE IN UPPER SURFACE ONLY
• ORIFICE IN LOWER SURFACE ONLY



PRESSURE ORIFICE DIAGRAM - WING

Figure 4.5



SECTION AT STATION 26.41

NOTES: ALL DIMENSIONS ARE INCHES MODEL SCALE.
MADE OF 1/16 INCH SHEET ALUMINUM.

TRANSITION STRIP T2

Figure 4.6

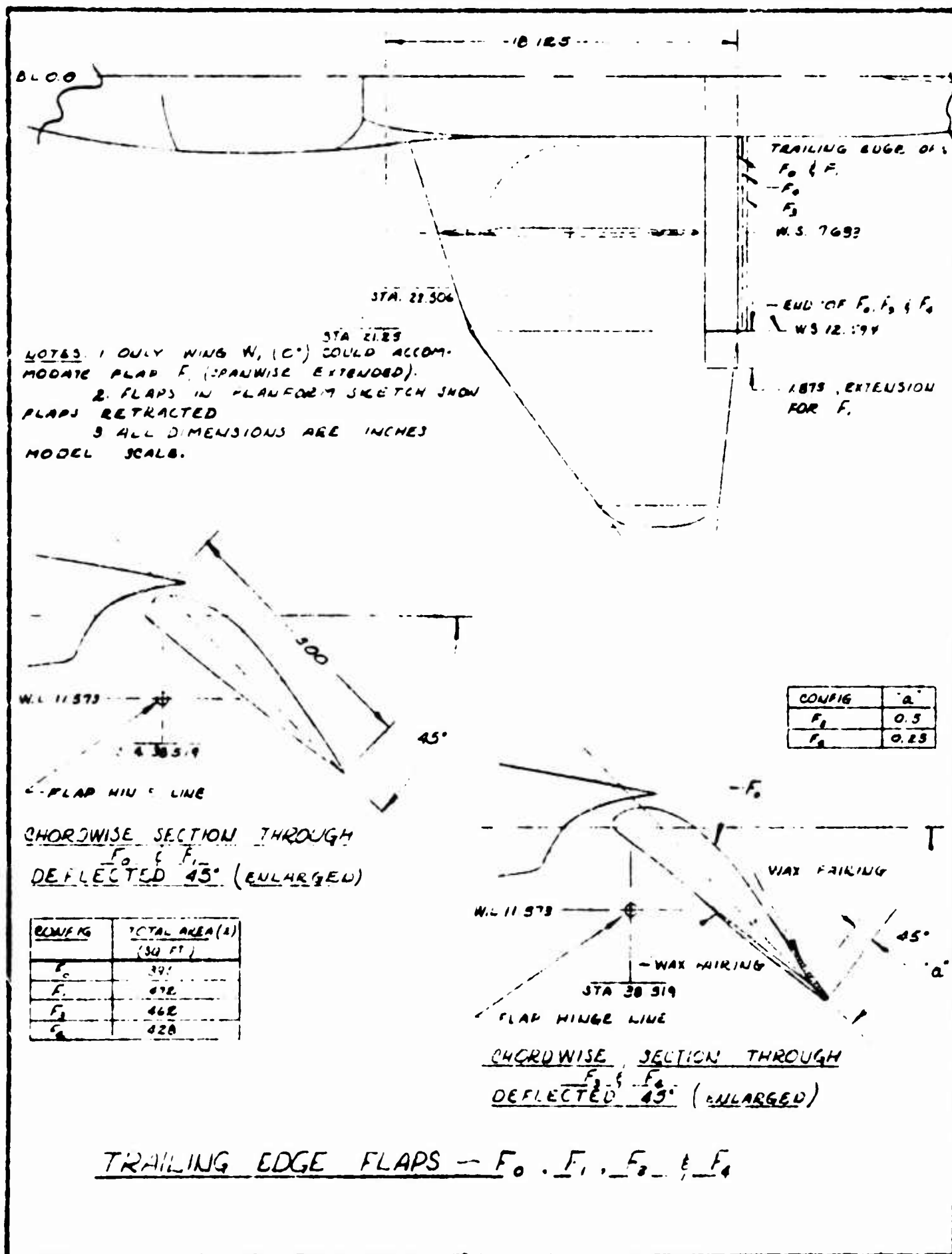


Figure 4.7

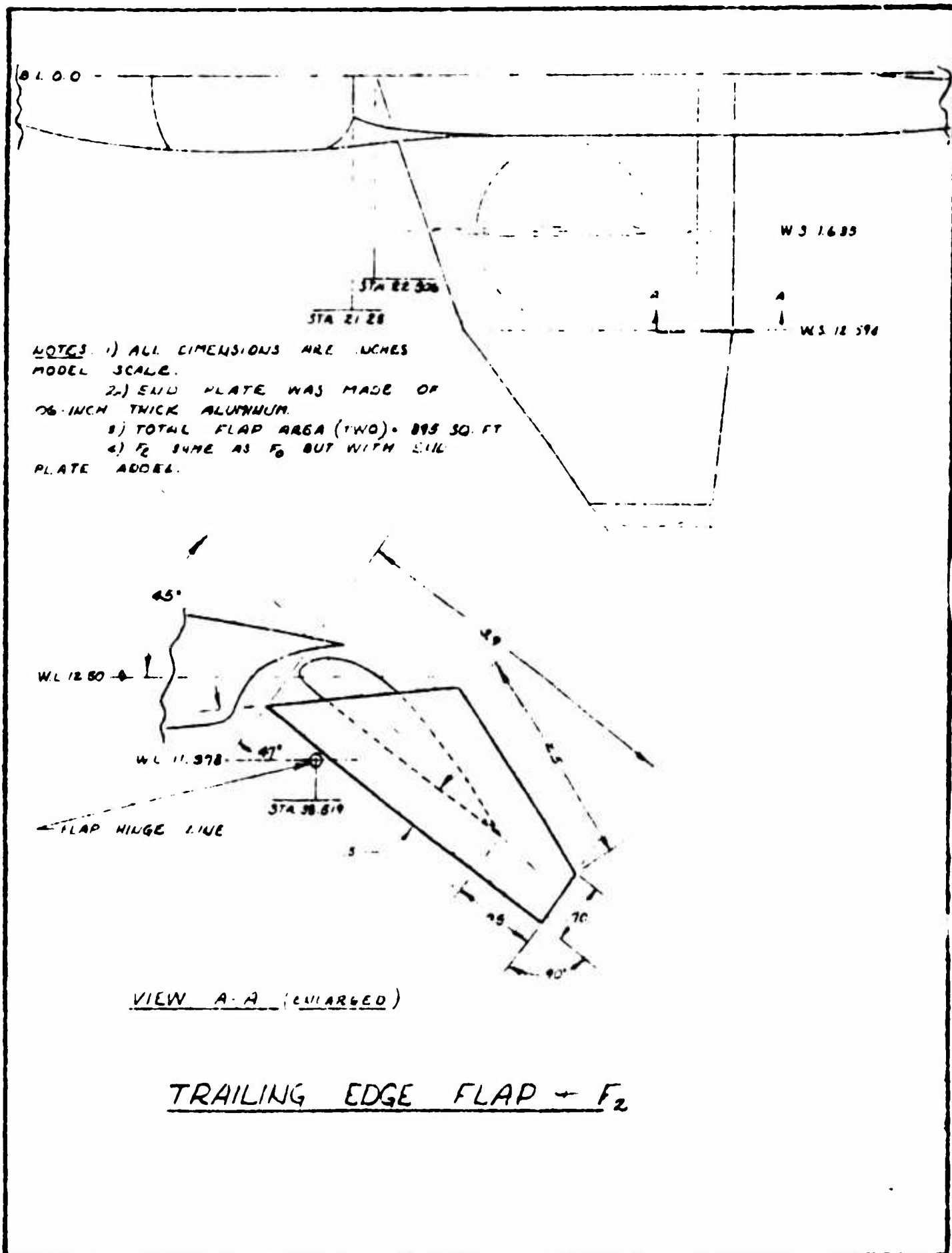


Figure 4.8

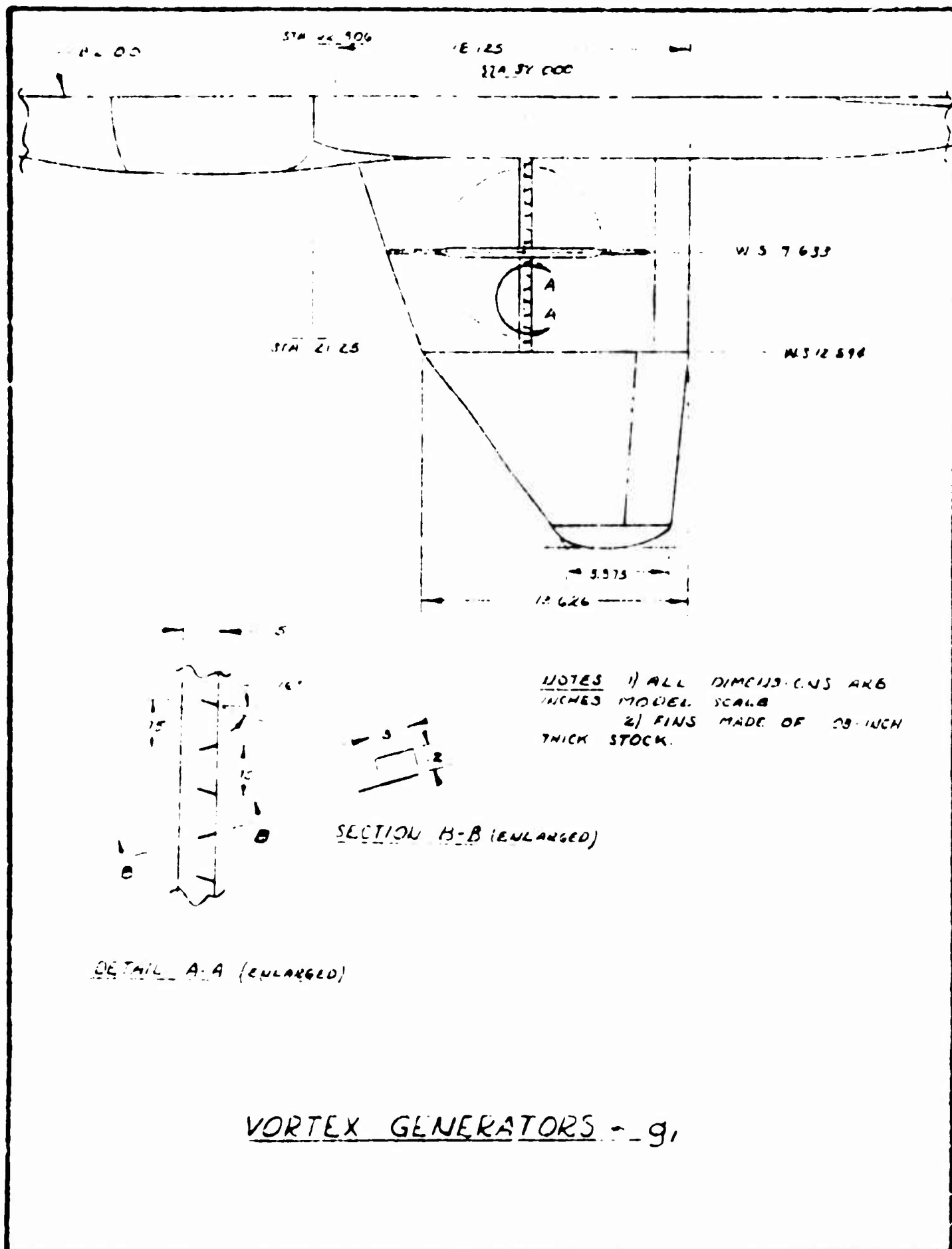


Figure 4.11

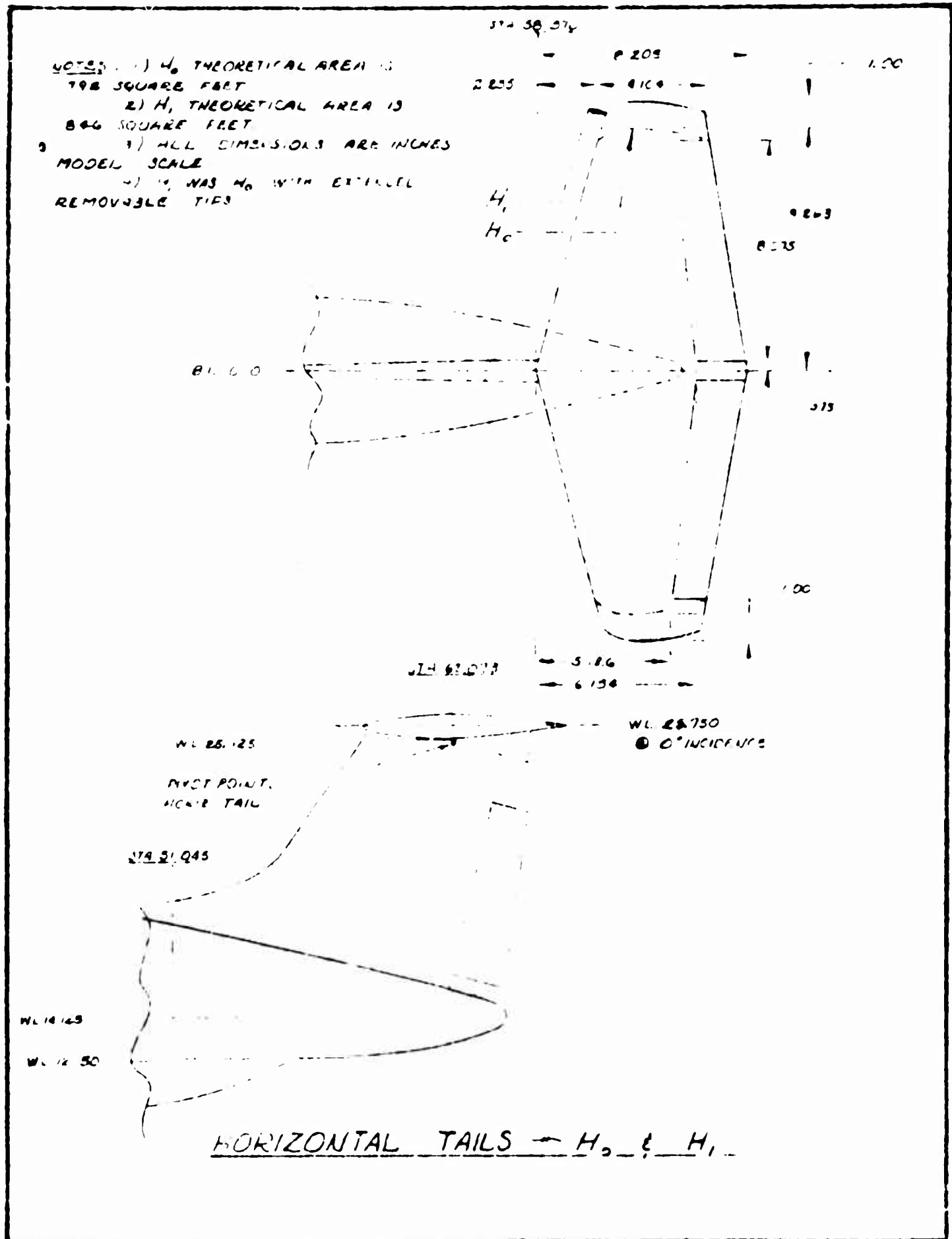


Figure 4.12

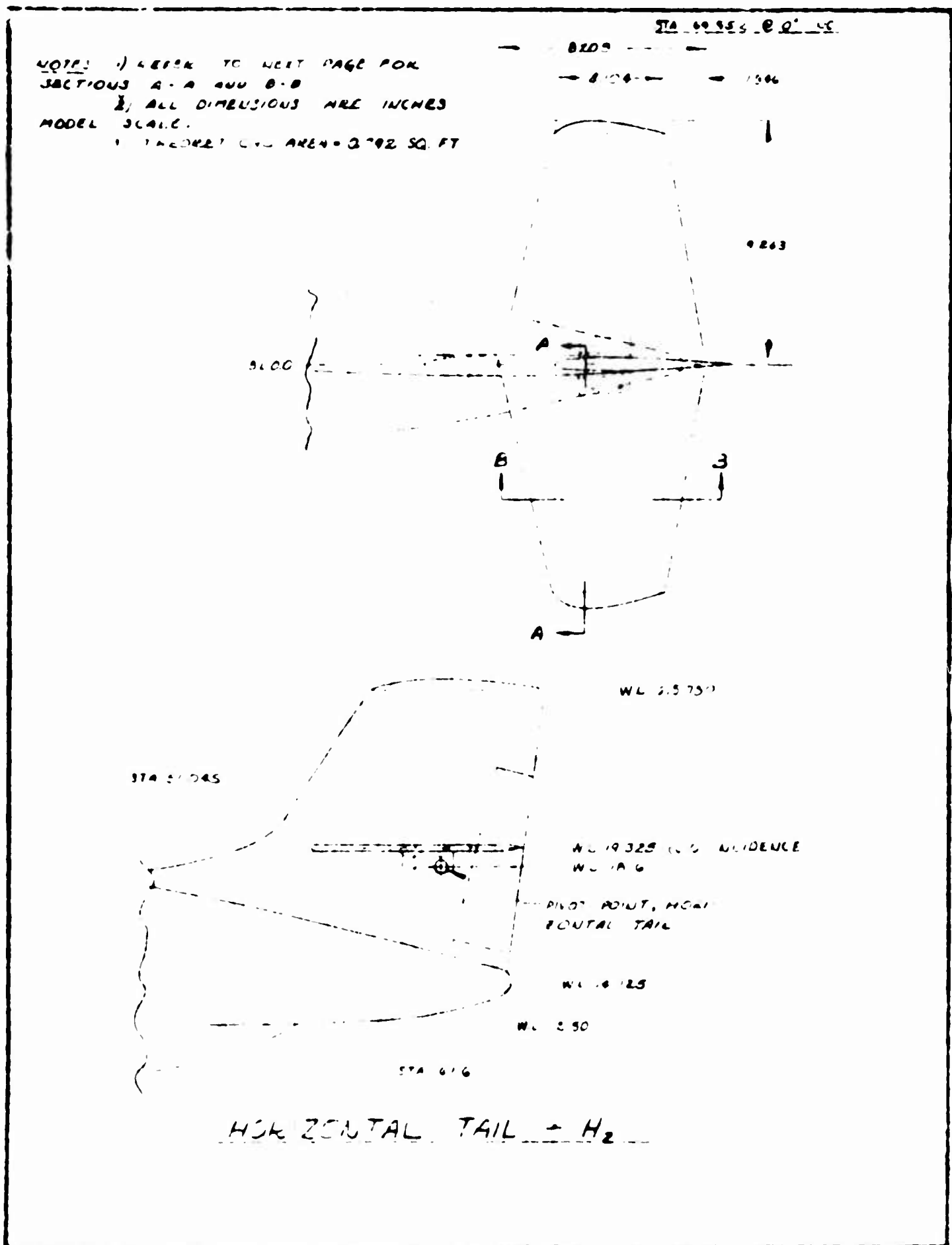
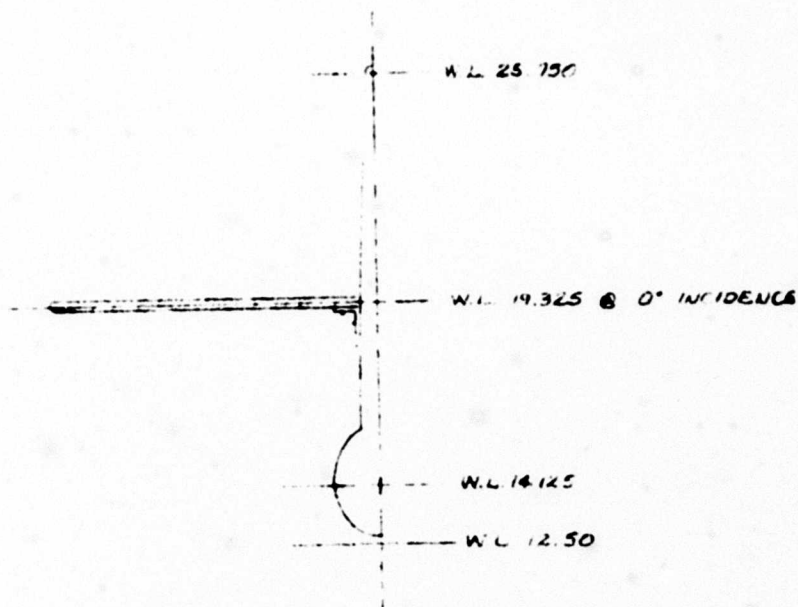
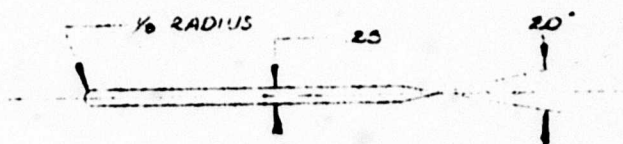


Figure 4.13



SECTION A - A

NOTES: 1) PLANFORM VIEW AND SIDE VIEW OF THIS CONFIGURATION ARE ON THE PRECEDING PAGE.
2) ALL DIMENSIONS ARE INCHES MODEL SCALE.



SECTION B - B

HORIZONTAL TAIL - H₂ (CONT'D)

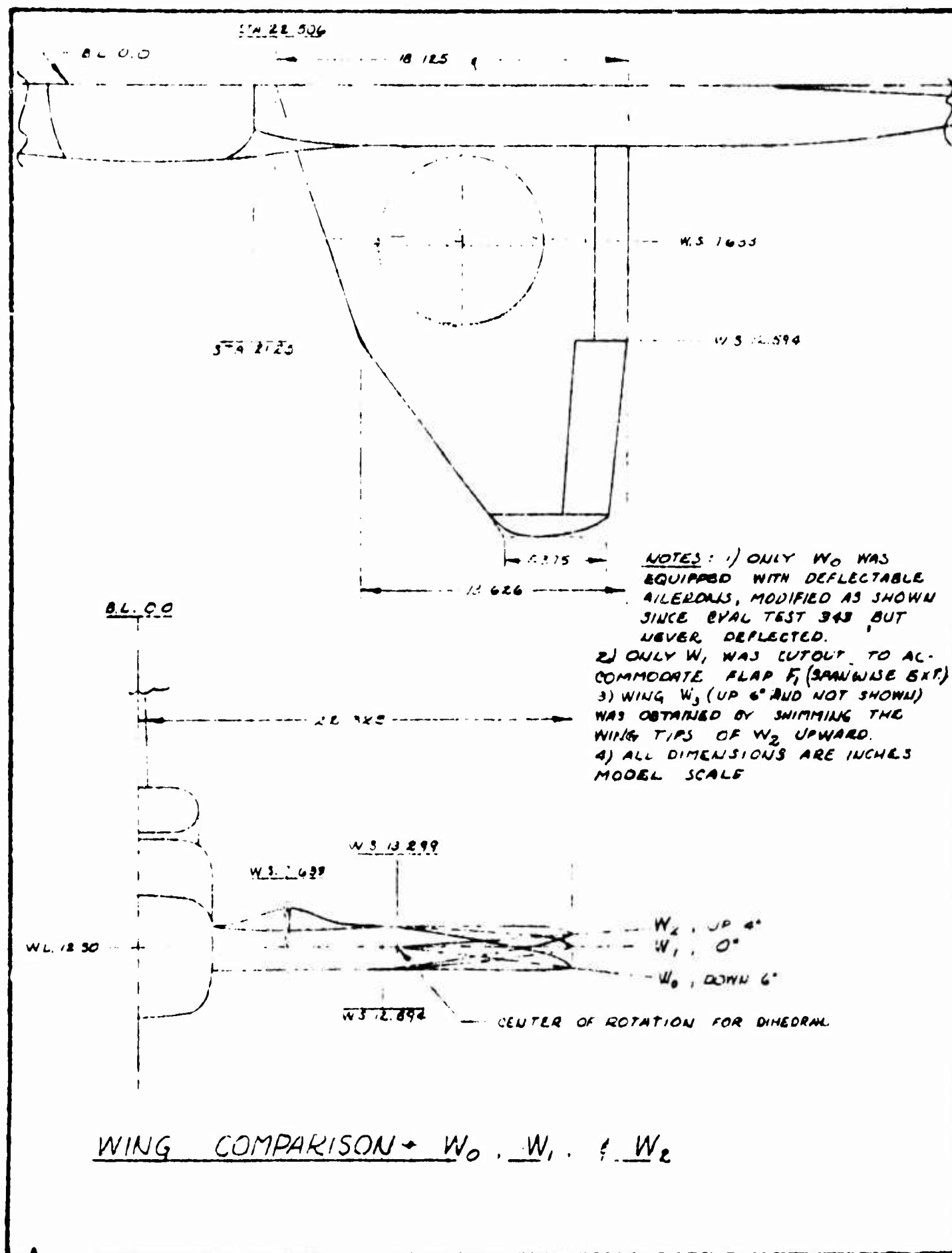
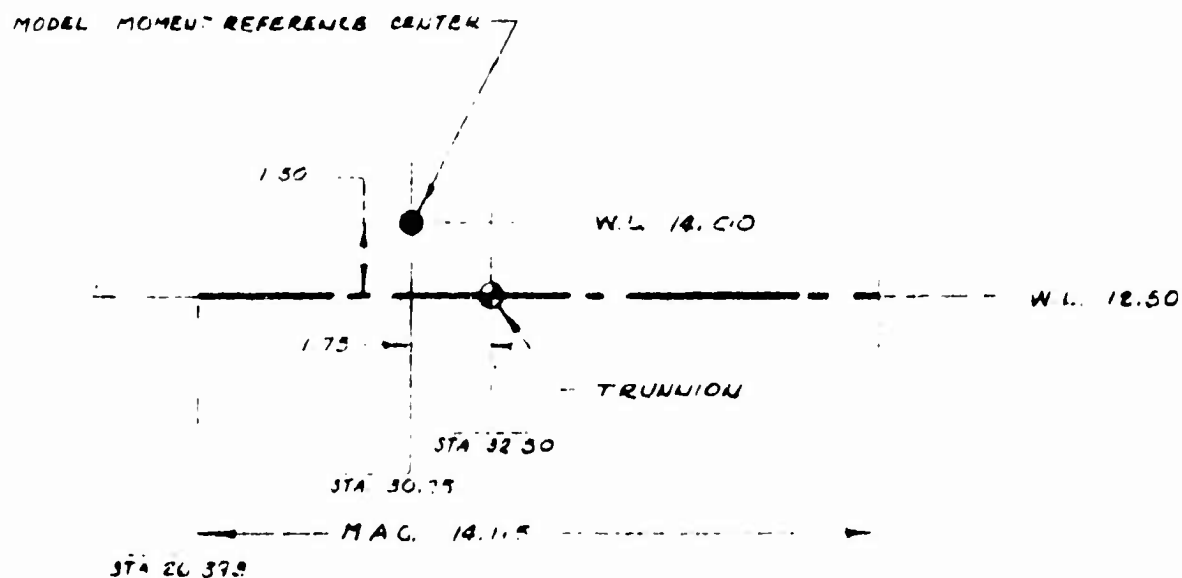


Figure 4.14



NOTE ALL DIMENSIONS ARE INCHES MODEL SCALE.

MOMENT REFERENCE DIAGRAM
 RYAN MODEL 143 (VERTIFAN)
 1/8 SCALE CONVENTIONAL MODEL

Figure 4.15

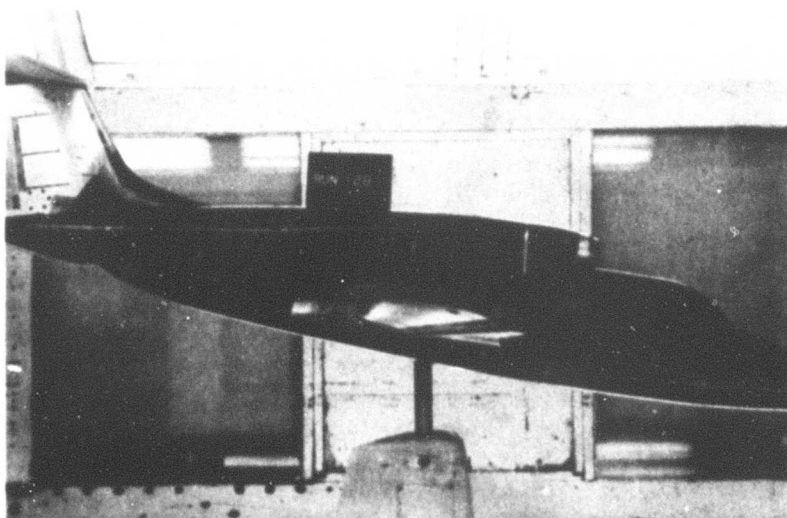
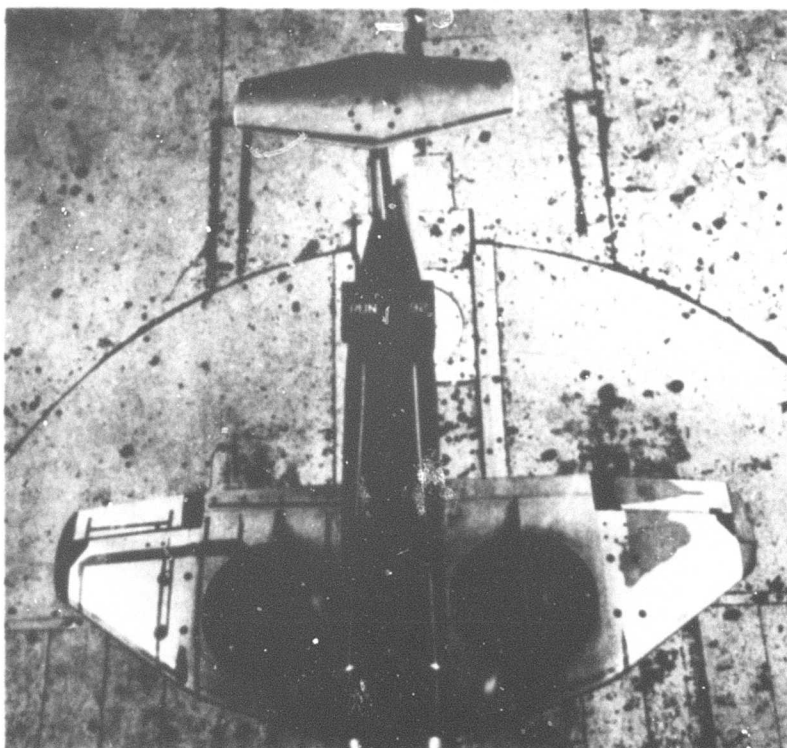
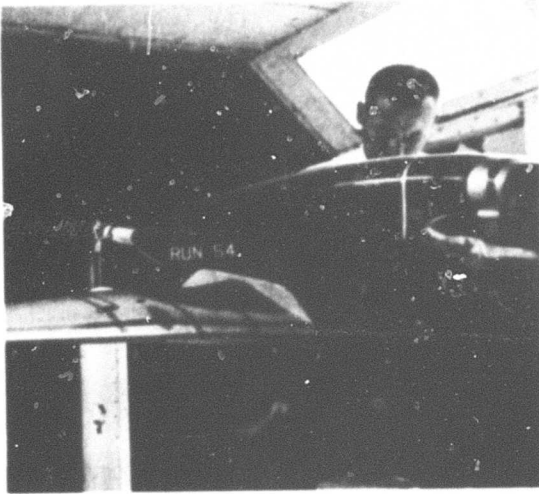
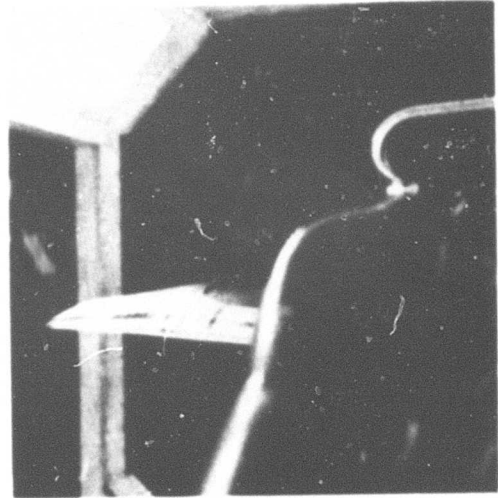


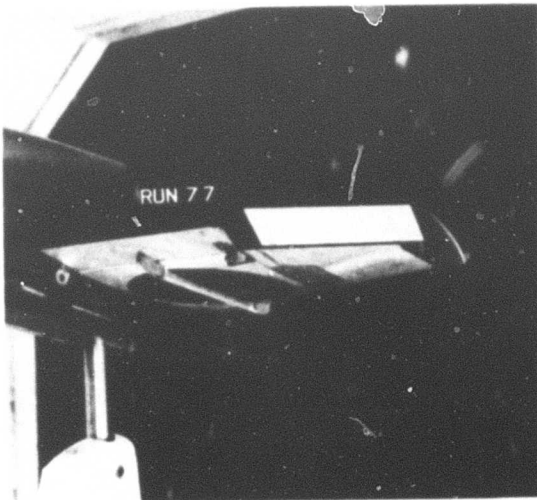
Figure 4.16 Basic Model with Empennage



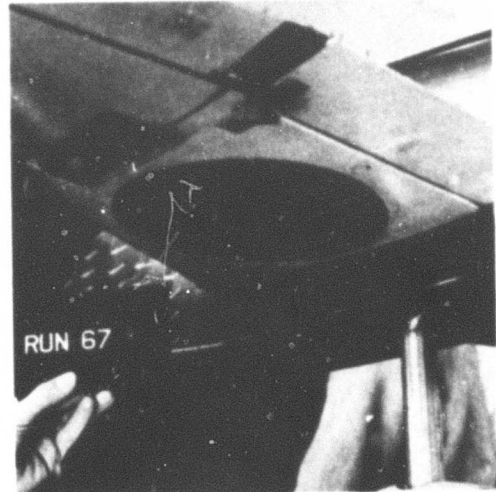
Wing Upper Surface
With "Bump" and Strut



Depressed "Bump"
Of Configuration S_2

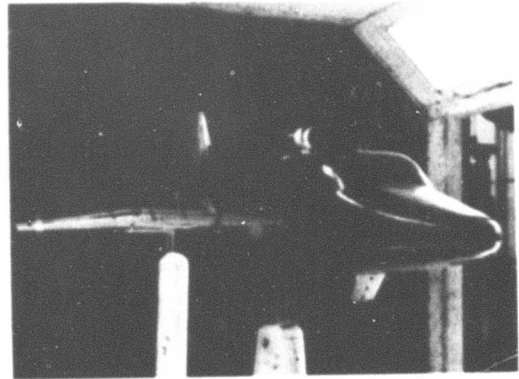
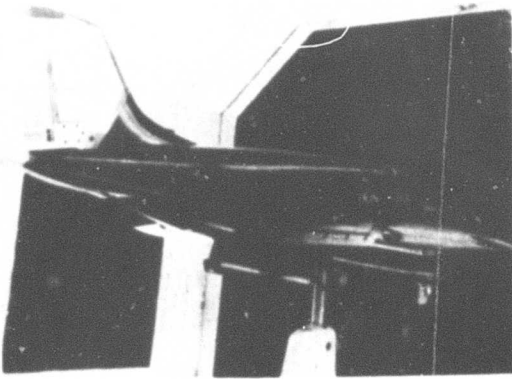


Wing Lower Surface
With Retracted Louvers and Strut

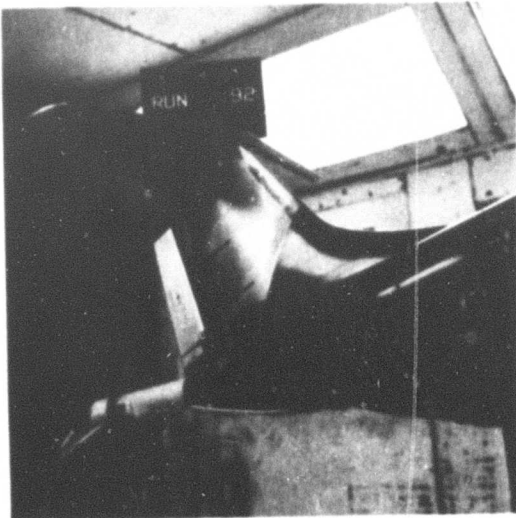


Depressed Louvers
Of Configurations S_1 and S_2

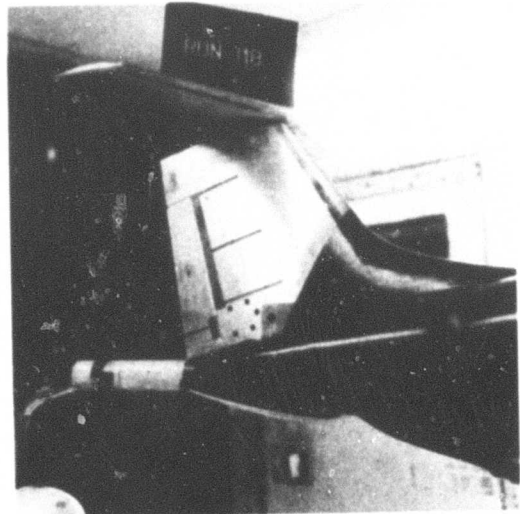
Figure 4.17 Wing Fan Covers, Louvers and Struts



Model With Landing Gear and Without Horizontal Tail



Note the Exposed Mounting Plate

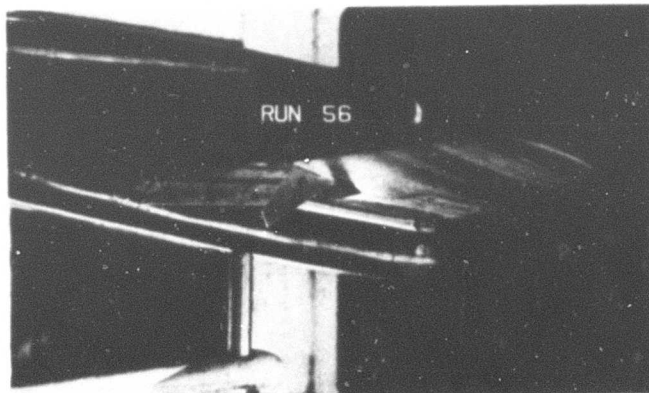


Note the Wax Fairing of V_1

Figure 4.18 Landing Gear and Empennage Details



Spanwise Extended Flap F_1

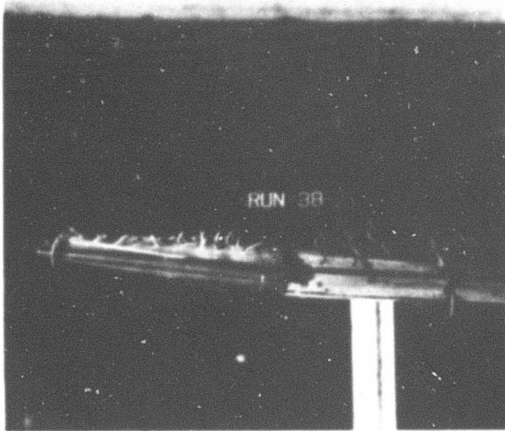


Flap With Outboard End Plate F_2

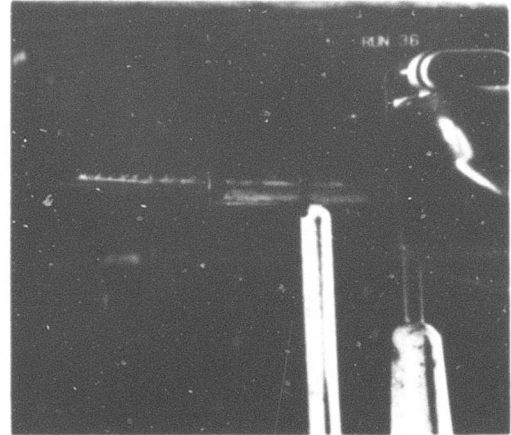


.25-Inch Chordwise Extended Flap F_4

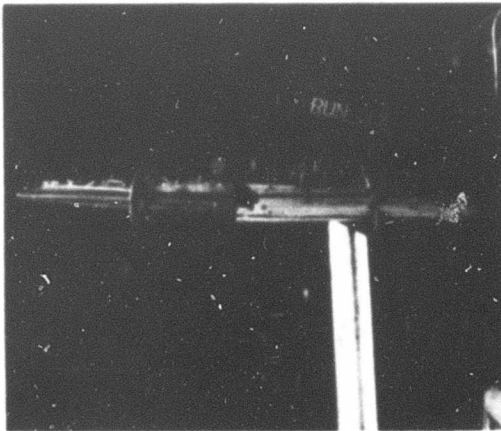
Figure 4.19 Modified Flaps F_1 , F_2 and F_4



Fence f_1 : 94.5% Wing Semispan



Fence f_3 : 56.75% Wing Semispan



Fence f_2 : 73% Wing Semispan

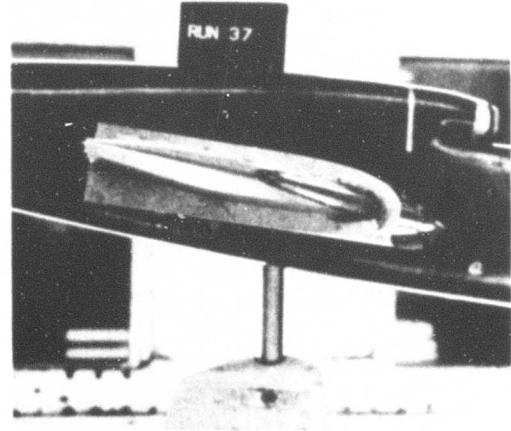


Figure 4.20 Wing Fences f_1 , f_2 , and f_3

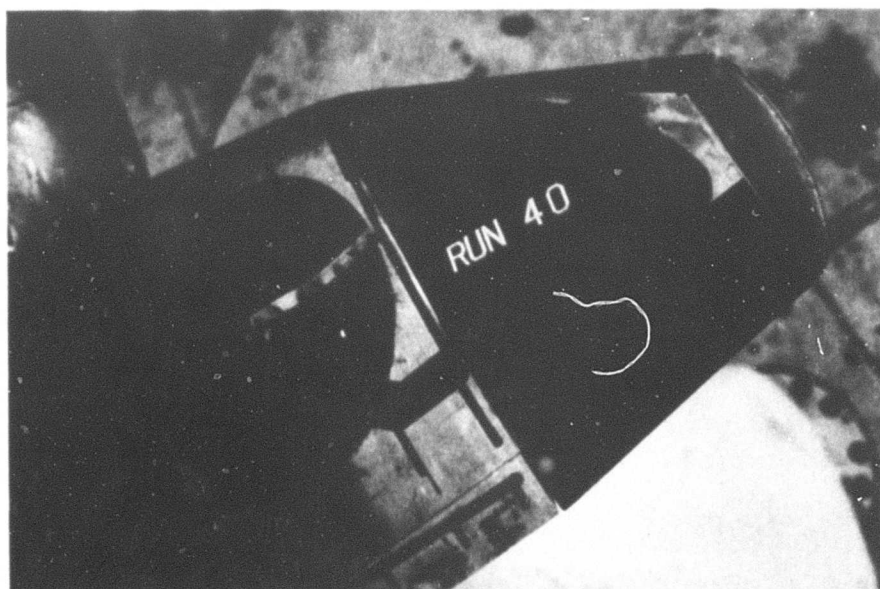
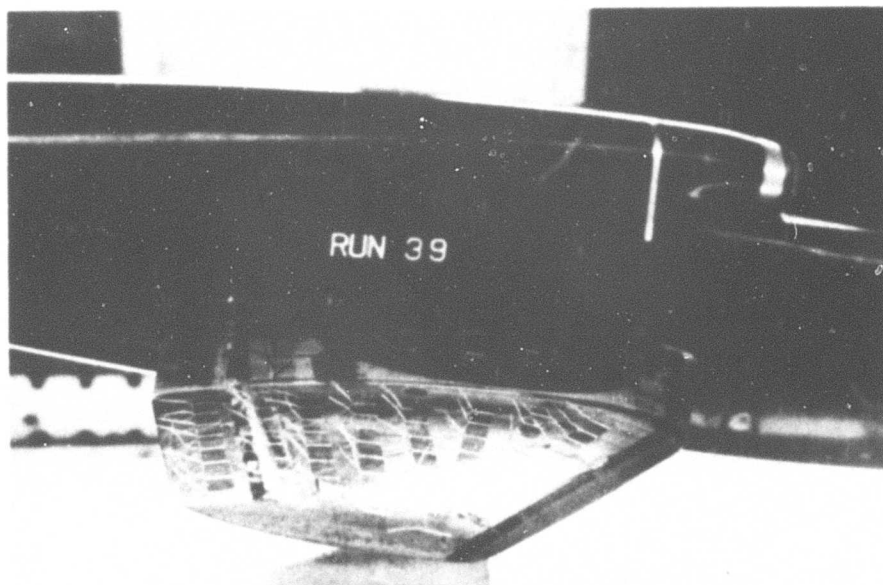


Figure 4.21 Wing with Vortex Generators g_0 and g_1

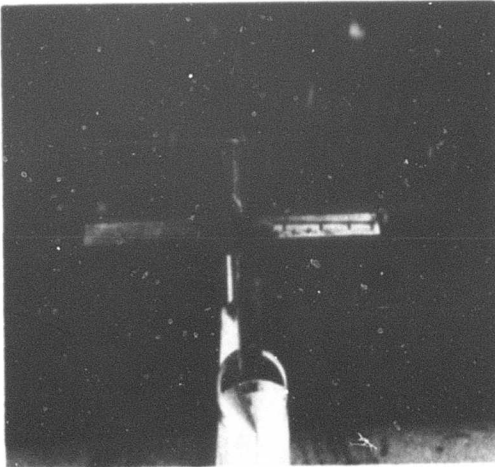
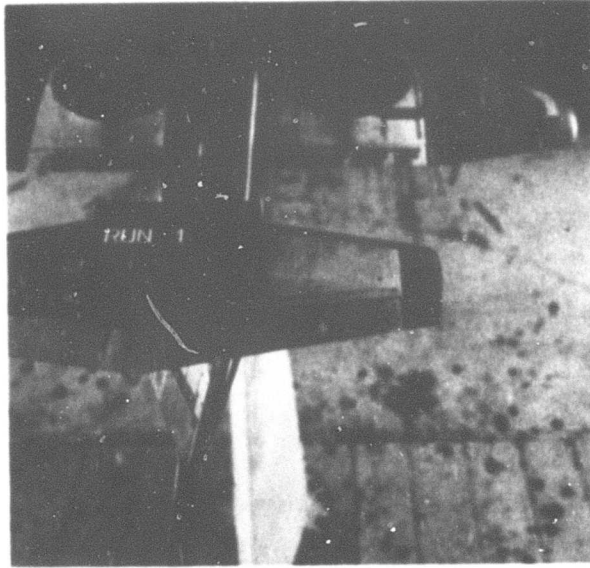


Figure 4.22 Horizontal Tails H_1 and H_2

4.4 DATA REDUCTION REFERENCE DIMENSIONS

External Balance

S	Wing Area: 4.068 square feet
\bar{c}	Wing Mean Aerodynamic Chord: 14.115 inches
b	Wing Span: 44.750 inches
AR	Aspect Ratio: 3.42

Hinge Moments

A_f	Flap Area (one only): 0.1975 square feet
c_f	Flap Root Mean Square Chord: 2.965 inches
A_a	Aileron Area Aft of Hinge Line (A_0 configuration) (one only): 0.160 square feet
c_a	Aileron Root Mean Square Chord Aft of Hinge Line (A_0 configuration): 2.353 inches
A_e	Elevator Area Aft of hinge Line (one only): 0.0951 square feet
c_e	Elevator Root Mean Square Chord Aft of Hinge Line: 1.661 inches
A_r	Rudder Area Aft of Hinge Line: 0.087 square feet
c_r	Rudder Root Mean Square Chord Aft of Hinge Line: 1.869 inches

4.3 REFERENCES

1. Liggett, H. G. : Low Speed Wind Tunnel Tests of a 1/8 Scale Conventional Model of the Ryan Vertifan Airplane to Determine Longitudinal and Direction of Characteristics, Duct Internal Flow, Wing and Fuselage Pressures, and Control Surface Cavity Pressures and Hinge Moments, General Dynamics/Convair Report CVAL 343 (Two Volumes), April 12, 1963.
2. Liggett, H. G. : Additional Low Speed Wind Tunnel Tests of the 1/8 Scale Ryan Model 143 (Vertifan) to Determine the Aerodynamic Effects of Wing Dihedral, Flap Modifications, Wing Fences, Vortex Generators and Horizontal Tail Variations, General Dynamics/Convair Report CVAL 343A, June 1, 1963.